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SEQUENCE LISTING

<110> JAPAN SCIENCE AND TECHNOLOGY CORPORATION

<120> Screening of genes to give tolerance against
environmental stress and the applications

<130> 12-130

<140>

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<150> JP P1999-235910

<151> 1999-07-19

<150> JP P2000-85377

<151> 2000-03-24

<160> 66

<170> PatentIn Ver. 2.1

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<211> 1018

<212> DNA

<213> Bruguiera sexangula

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<222> (42)..(464)

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Ser Ala Leu Arg Thr Val Ser Ser Ser Val Lys Val Val Gly Pro Ala

10

15

20

aga tca aag agt gct act gla ccc acc caa aca gla ttg cct ttc aag 152
Arg Ser Lys Ser Ala Thr Val Pro Thr Gln Thr Val Leu Pro Phe Lys

25

30

35

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Phe Thr Asn Pro Ser Leu Leu Thr Arg Ser Leu Ser Phe Ser Ser Lys

| 40 | 45 | 50 | |
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| ggl tca agc ttt gac agc ttc tct gla ccc aaa aga tct ttt tct tgc | | | 248 |
| Gly Ser Ser Phe Asp Ser Phe Ser Val Pro Lys Arg Ser Phe Ser Cys | | | |
| 55 | 60 | 65 | |
| aga agc caa gcc acf cca tct gal gal gcc tca aga ccc acc aaa gtt | | | 296 |
| Arg Ser Gln Ala Thr Pro Ser Asp Asp Ala Ser Arg Pro Thr Lys Val | | | |
| 70 | 75 | 80 | 85 |
| caa gag cag tgt gtg tat gag atg aac gag aga gal cgt gga agc cct | | | 344 |
| Gln Glu Leu Cys Val Tyr Glu Met Asn Glu Arg Asp Arg Gly Ser Pro | | | |
| 90 | 95 | 100 | |
| gct gtt ctc cgg ttg agc cag aaa cct gtt aat tct ctc ggc gat ctc | | | 392 |
| Ala Val Leu Arg Leu Ser Gln Lys Pro Val Asn Ser Leu Gly Asp Leu | | | |
| 105 | 110 | 115 | |
| gtg cct ttc agt aac aaa gtt tac agc gga gac ctg cag aag cga att | | | 440 |
| Val Pro Phe Ser Asn Lys Val Tyr Ser Gly Asp Leu Gln Lys Arg Ile | | | |
| 120 | 125 | 130 | |
| gga gta acc gca gaa tat gca tcc tga tcccaaaa caagccagaa aaaaagggtg | | | 494 |
| Gly Val Thr Ala Glu Tyr Ala Ser | | | |
| 135 | 140 | | |
| atcgctttga agcgatataf agctttttatt tgggtggcta tggtcacatt gcctgtcaag 554 | | | |
| gcgcatactt gacctacgag gacacgcacc ttgcctgtgac gggcgggctg ggcatatttg 614 | | | |
| aaggagtgtc tggtcagggt aagctgcagc aactcgtgtc cctttcaag cttttctaca 674 | | | |
| ctttctactt gcgaggcatc aaggacttgc cggaggagct tacgaagaag ccggttgagc 734 | | | |
| cccacccctc tgttgagccg atgccggcgg ccaaggcttg cgagccacat gccgttgttg 794 | | | |
| ctaatctcac cgattagtga ttaattgtcc ttttgggggt cggatgaact tgagttagct 854 | | | |
| tacagttgca caacgttatg gcgcgagaca cgagaggga ccttagccat aagaaaatta 914 | | | |
| ataatctcac ggtgtcttta ttttgattct tctattagtt gaatcgttaa tgaaagtga 974 | | | |
| ccaaattggc tgttttacgt tttaaaaaaaa aaaaaaaaaa aaaa 1018 | | | |

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<213> Bruguiera sexangula

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35 40 45
Ser Phe Ser Ser Lys Gly Ser Ser Phe Asp Ser Phe Ser Val Pro Lys
50 55 60
Arg Ser Phe Ser Cys Arg Ser Gln Ala Thr Pro Ser Asp Asp Ala Ser
65 70 75 80
Arg Pro Thr Lys Val Gln Glu Leu Cys Val Tyr Glu Met Asn Glu Arg
85 90 95
Asp Arg Gly Ser Pro Ala Val Leu Arg Leu Ser Gln Lys Pro Val Asn
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| Met Ala Ile Ala Ala Gln Thr Pro Asp Ile Leu | |
| 1 5 10 | |
| ggc gaa cgt cag tcc ggc cag gac gtc cgc act caa aat gtg gtg gca | 161 |
| Gly Glu Arg Gln Ser Gly Gln Asp Val Arg Thr Gln Asn Val Val Ala | |
| 15 20 25 | |
| tgt caa gcg gtt gcc aat att gtc aaa tct tca ctt ggt cct gtc gga | 209 |
| Cys Gln Ala Val Ala Asn Ile Val Lys Ser Ser Leu Gly Pro Val Gly | |
| 30 35 40 | |
| ctc gac aag atg cta gtg gat gat att ggt gat gla aca att aca aat | 257 |
| Leu Asp Lys Met Leu Val Asp Asp Ile Gly Asp Val Thr Ile Thr Asn | |
| 45 50 55 | |
| gat ggt gct acg att ctt aag atg tta gaa gla gag cat cct gca gca | 305 |
| Asp Gly Ala Thr Ile Leu Lys Met Leu Glu Val Glu His Pro Ala Ala | |
| 60 65 70 75 | |
| aag gtg ctc gtg gag ttg gct gag ctt caa gac cga gaa gtt gga gat | 353 |
| Lys Val Leu Val Glu Leu Ala Glu Leu Gln Asp Arg Glu Val Gly Asp | |
| 80 85 90 | |
| gga acc act tcc gtt gtc atc ata gca gct gag ttg ctc aag aga gca | 401 |
| Gly Thr Thr Ser Val Val Ile Ile Ala Ala Glu Leu Leu Lys Arg Ala | |
| 95 100 105 | |
| aat gat ctc gtg agg aat aag atc cac cca aca tca ata atc agt gga | 449 |
| Asn Asp Leu Val Arg Asn Lys Ile His Pro Thr Ser Ile Ile Ser Gly | |
| 110 115 120 | |
| tac agg ctt gct atg agg gaa gca tgc aag tat gtt gaa gag aaa ttg | 497 |
| Tyr Arg Leu Ala Met Arg Glu Ala Cys Lys Tyr Val Glu Glu Lys Leu | |
| 125 130 135 | |
| tca atg aag gtt gaa aag ctt gga aaa gat tct cta gla aac tgt gca | 545 |
| Ser Met Lys Val Glu Lys Leu Gly Lys Asp Ser Leu Val Asn Cys Ala | |
| 140 145 150 155 | |
| aag aca agc atg tcc tca aag ttg ata gct ggt gac agc gac ttc ttt | 593 |
| Lys Thr Ser Met Ser Ser Lys Leu Ile Ala Gly Asp Ser Asp Phe Phe | |
| 160 165 170 | |
| gca aat ttg gtt gla gat gct gla caa gca gla aag atg acc aat gca | 641 |
| Ala Asn Leu Val Val Asp Ala Val Gln Ala Val Lys Met Thr Asn Ala | |

| 175 | 180 | 185 | |
|---|-----|-----|------|
| cgg ggg gaa atc aaa tat cct atc aag agt ata aat att ttg aaa gct | | | 689 |
| Arg Gly Glu Ile Lys Tyr Pro Ile Lys Ser Ile Asn Ile Leu Lys Ala | | | |
| 190 | 195 | 200 | |
| cat gga aaa agt gca aga gat agc tgc ctt ttg aat ggc tat gct ctc | | | 737 |
| His Gly Lys Ser Ala Arg Asp Ser Cys Leu Leu Asn Gly Tyr Ala Leu | | | |
| 205 | 210 | 215 | |
| aat acf ggt cgt gct gct caa ggg atg cct atg aga gtt gca cct gca | | | 785 |
| Asn Thr Gly Arg Ala Ala Gln Gly Met Pro Met Arg Val Ala Pro Ala | | | |
| 220 | 225 | 230 | 235 |
| agg att gct tgt ctt gac ttt aat ctt cag aaa acg aag atg caa ttg | | | 833 |
| Arg Ile Ala Cys Leu Asp Phe Asn Leu Gln Lys Thr Lys Met Gln Leu | | | |
| 240 | 245 | 250 | |
| ggt gla caa gtc tta gtc act gat ccc agg gag ctt gaa aga att cgt | | | 881 |
| Gly Val Gln Val Leu Val Thr Asp Pro Arg Glu Leu Glu Arg Ile Arg | | | |
| 255 | 260 | 265 | |
| caa aga gaa gct gat atg aca aag gaa cgg att gag aaa ctc ctg aaa | | | 929 |
| Gln Arg Glu Ala Asp Met Thr Lys Glu Arg Ile Glu Lys Leu Leu Lys | | | |
| 270 | 275 | 280 | |
| gct gga gca aat gtt gtt cta acc aca aag gga att gat gac atg gca | | | 977 |
| Ala Gly Ala Asn Val Val Leu Thr Thr Lys Gly Ile Asp Asp Met Ala | | | |
| 285 | 290 | 295 | |
| ctt aaa tat ttt gtg gag gct ggg gct att gct gtg aga cgt gtt cgg | | | 1025 |
| Leu Lys Tyr Phe Val Glu Ala Gly Ala Ile Ala Val Arg Arg Val Arg | | | |
| 300 | 305 | 310 | 315 |
| aaa gag gat atg cgc cat gtt gcc aag gca act ggt gca aca ctg gtt | | | 1073 |
| Lys Glu Asp Met Arg His Val Ala Lys Ala Thr Gly Ala Thr Leu Val | | | |
| 320 | 325 | 330 | |
| tca aca ttt gct gac atg gaa gga gag gaa aca ttt gat tca tca ctg | | | 1121 |
| Ser Thr Phe Ala Asp Met Glu Gly Glu Glu Thr Phe Asp Ser Ser Leu | | | |
| 335 | 340 | 345 | |
| ctt gga caa gct gaa gaa gtt gtg gag gag cgc att gct gat gac gat | | | 1169 |
| Leu Gly Gln Ala Glu Glu Val Val Glu Glu Arg Ile Ala Asp Asp Asp | | | |
| 350 | 355 | 360 | |

| | |
|---|------|
| gtg att atg ata aaa ggg aca aag acf aca agf gcg gtt tcc ttg att | 1217 |
| Val Ile Met Ile Lys Gly Thr Lys Thr Thr Ser Ala Val Ser Leu Ile | |
| 365 370 375 | |
| ctt cgt ggt gca aat gac tat atg ctc gat gag atg gag cga gcc ctg | 1265 |
| Leu Arg Gly Ala Asn Asp Tyr Met Leu Asp Glu Met Glu Arg Ala Leu | |
| 380 385 390 395 | |
| cat gat gct tta tgt att gtc aag aga acc ctt gaa tct aat aca gta | 1313 |
| His Asp Ala Leu Cys Ile Val Lys Arg Thr Leu Glu Ser Asn Thr Val | |
| 400 405 410 | |
| gtt gca ggt gga ggt gct gtt gag gct gcc ttg tct gtg cac ttg gag | 1361 |
| Val Ala Gly Gly Gly Ala Val Glu Ala Ala Leu Ser Val His Leu Glu | |
| 415 420 425 | |
| tac ctc gct aca acf ctt ggg tca cga gag cag tta gca ata gca gag | 1409 |
| Tyr Leu Ala Thr Thr Leu Gly Ser Arg Glu Gln Leu Ala Ile Ala Glu | |
| 430 435 440 | |
| ttt gca gaa tcc ttg ttg att ata cca aag gtt ctt gct gtc aat gct | 1457 |
| Phe Ala Glu Ser Leu Leu Ile Ile Pro Lys Val Leu Ala Val Asn Ala | |
| 445 450 455 | |
| gcc aaa gat gcc acf gaa tta gct gca aaa ctc cgg gct tac cac cat | 1505 |
| Ala Lys Asp Ala Thr Glu Leu Ala Ala Lys Leu Arg Ala Tyr His His | |
| 460 465 470 475 | |
| aca gca caa aca aag gct gat aag aaa cat tta tca agc atg gga cta | 1553 |
| Thr Ala Gln Thr Lys Ala Asp Lys Lys His Leu Ser Ser Met Gly Leu | |
| 480 485 490 | |
| gac ctt tca aag ggg acc atc cga aac aac tta gaa gct gga gtc att | 1601 |
| Asp Leu Ser Lys Gly Thr Ile Arg Asn Asn Leu Glu Ala Gly Val Ile | |
| 495 500 505 | |
| gaa cct gca atg agc aaa ata aag ata att cag ttt gct acf gaa gca | 1649 |
| Glu Pro Ala Met Ser Lys Ile Lys Ile Ile Gln Phe Ala Thr Glu Ala | |
| 510 515 520 | |
| gcc ala aca att ctt cga att gat gac atg atc aag ctt gtc aag gat | 1697 |
| Ala Ile Thr Ile Leu Arg Ile Asp Asp Met Ile Lys Leu Val Lys Asp | |
| 525 530 535 | |
| gag acf cag aat gaa gag gaa tagatgcaga ctccttgaag ctgcccct | 1748 |
| Glu Thr Gln Asn Glu Glu Glu | |

540

545

tttgttttca aatttltgtc ccttgcgagc tggaggaaag ggggggtgtt tatgttgtgt 1808
 tticagtgggt ttttaatttt caaggagctc gcggccgtgt tacttttaggt tagagtcctat 1868
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<212> PRT

<213> Bruguiera sexangula

<400> 4

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Gln | Asp | Val | Arg | Thr | Gln | Asn | Val | Val | Ala | Cys | Gln | Ala | Val | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Ile | Val | Lys | Ser | Ser | Leu | Gly | Pro | Val | Gly | Leu | Asp | Lys | Met | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Asp | Asp | Ile | Gly | Asp | Val | Thr | Ile | Thr | Asn | Asp | Gly | Ala | Thr | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Lys | Met | Leu | Glu | Val | Glu | His | Pro | Ala | Ala | Lys | Val | Leu | Val | Glu |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Ala | Glu | Leu | Gln | Asp | Arg | Glu | Val | Gly | Asp | Gly | Thr | Thr | Ser | Val |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Val | Ile | Ile | Ala | Ala | Glu | Leu | Leu | Lys | Arg | Ala | Asn | Asp | Leu | Val | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Lys | Ile | His | Pro | Thr | Ser | Ile | Ile | Ser | Gly | Tyr | Arg | Leu | Ala | Met |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Arg | Glu | Ala | Cys | Lys | Tyr | Val | Glu | Glu | Lys | Leu | Ser | Met | Lys | Val | Glu |

| | | |
|---|-----|-------------|
| 130 | 135 | 140 |
| Lys Leu Gly Lys Asp Ser Leu Val Asn Cys Ala Lys Thr Ser Met Ser | | |
| 145 | 150 | 155 160 |
| Ser Lys Leu Ile Ala Gly Asp Ser Asp Phe Phe Ala Asn Leu Val Val | | |
| | 165 | 170 175 |
| Asp Ala Val Gln Ala Val Lys Met Thr Asn Ala Arg Gly Glu Ile Lys | | |
| | 180 | 185 190 |
| Tyr Pro Ile Lys Ser Ile Asn Ile Leu Lys Ala His Gly Lys Ser Ala | | |
| | 195 | 200 205 |
| Arg Asp Ser Cys Leu Leu Asn Gly Tyr Ala Leu Asn Thr Gly Arg Ala | | |
| | 210 | 215 220 |
| Ala Gln Gly Met Pro Met Arg Val Ala Pro Ala Arg Ile Ala Cys Leu | | |
| | 225 | 230 235 240 |
| Asp Phe Asn Leu Gln Lys Thr Lys Met Gln Leu Gly Val Gln Val Leu | | |
| | 245 | 250 255 |
| Val Thr Asp Pro Arg Glu Leu Glu Arg Ile Arg Gln Arg Glu Ala Asp | | |
| | 260 | 265 270 |
| Met Thr Lys Glu Arg Ile Glu Lys Leu Leu Lys Ala Gly Ala Asn Val | | |
| | 275 | 280 285 |
| Val Leu Thr Thr Lys Gly Ile Asp Asp Met Ala Leu Lys Tyr Phe Val | | |
| | 290 | 295 300 |
| Glu Ala Gly Ala Ile Ala Val Arg Arg Val Arg Lys Glu Asp Met Arg | | |
| | 305 | 310 315 320 |
| His Val Ala Lys Ala Thr Gly Ala Thr Leu Val Ser Thr Phe Ala Asp | | |
| | 325 | 330 335 |
| Met Glu Gly Glu Glu Thr Phe Asp Ser Ser Leu Leu Gly Gln Ala Glu | | |
| | 340 | 345 350 |
| Glu Val Val Glu Glu Arg Ile Ala Asp Asp Asp Val Ile Met Ile Lys | | |
| | 355 | 360 365 |
| Gly Thr Lys Thr Thr Ser Ala Val Ser Leu Ile Leu Arg Gly Ala Asn | | |
| | 370 | 375 380 |

Asp Tyr Met Leu Asp Glu Met Glu Arg Ala Leu His Asp Ala Leu Cys
 385 390 395 400
 Ile Val Lys Arg Thr Leu Glu Ser Asn Thr Val Val Ala Gly Gly Gly
 405 410 415
 Ala Val Glu Ala Ala Leu Ser Val His Leu Glu Tyr Leu Ala Thr Thr
 420 425 430
 Leu Gly Ser Arg Glu Gln Leu Ala Ile Ala Glu Phe Ala Glu Ser Leu
 435 440 445
 Leu Ile Ile Pro Lys Val Leu Ala Val Asn Ala Ala Lys Asp Ala Thr
 450 455 460
 Glu Leu Ala Ala Lys Leu Arg Ala Tyr His His Thr Ala Gln Thr Lys
 465 470 475 480
 Ala Asp Lys Lys His Leu Ser Ser Met Gly Leu Asp Leu Ser Lys Gly
 485 490 495
 Thr Ile Arg Asn Asn Leu Glu Ala Gly Val Ile Glu Pro Ala Met Ser
 500 505 510
 Lys Ile Lys Ile Ile Gln Phe Ala Thr Glu Ala Ala Ile Thr Ile Leu
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 Glu Glu
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<220>
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 <222> (26)..(262)

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 Gly Ala Ala Ser Lys Thr Gly Lys Leu Thr Leu Lys Thr Thr Glu Met
 20 25 30
 gag acg gtg tac gat ttg ggg gcg aaa atg ata gag gca ttg ggg aag 144
 Glu Thr Val Tyr Asp Leu Gly Ala Lys Met Ile Glu Ala Leu Gly Lys
 35 40 45
 gaa aag gtg cag agt ggg gat gtt att gca att gac aag gcg tcc ggc 192
 Glu Lys Val Gln Ser Gly Asp Val Ile Ala Ile Asp Lys Ala Ser Gly
 50 55 60
 aaa att aca aag ctt ggg cgt tca ttt tgg cgg tct agg gat tac gat 240
 Lys Ile Thr Lys Leu Gly Arg Ser Phe Ser Arg Ser Arg Asp Tyr Asp
 65 70 75 80
 gcc atg gga cca cag gtg aag ttt gtt cag tgc cct gat ggg gag ctg 288
 Ala Met Gly Pro Gln Val Lys Phe Val Gln Cys Pro Asp Gly Glu Leu
 85 90 95

| | |
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| cag aag agg aaa gag gtc glg cal lgl glc lca clg cac gag att gat | 336 |
| Gln Lys Arg Lys Glu Val Val His Cys Val Ser Leu His Glu Ile Asp | |
| 100 105 110 | |
| glt atc aat agc aga aca cag ggg ttt ctt gct ctt ttc acc ggg gat | 384 |
| Val Ile Asn Ser Arg Thr Gln Gly Phe Leu Ala Leu Phe Thr Gly Asp | |
| 115 120 125 | |
| act ggt gaa atc cgt gcg gag gtg agg gaa caa att gac aca aag gtg | 432 |
| Thr Gly Glu Ile Arg Ala Glu Val Arg Glu Gln Ile Asp Thr Lys Val | |
| 130 135 140 | |
| gct gaa tgg aga gag gaa ggg aaa gca gag att glg cca ggt gtc ctc | 480 |
| Ala Glu Trp Arg Glu Glu Gly Lys Ala Glu Ile Val Pro Gly Val Leu | |
| 145 150 155 160 | |
| ttt att gat gag gtc cac atg ctt gac att gag tgc ttc tca ttt ctg | 528 |
| Phe Ile Asp Glu Val His Met Leu Asp Ile Glu Cys Phe Ser Phe Leu | |
| 165 170 175 | |
| aat cgt gct ctt gag aat gag atg gcg cca ata tta gtt gtt gct acc | 576 |
| Asn Arg Ala Leu Glu Asn Glu Met Ala Pro Ile Leu Val Val Ala Thr | |
| 180 185 190 | |
| aac aga ggg atc acc aca atc aga ggc aca aat tac aaa tct cct cat | 624 |
| Asn Arg Gly Ile Thr Thr Ile Arg Gly Thr Asn Tyr Lys Ser Pro His | |
| 195 200 205 | |
| ggg att cca ata gat ctc ctt gat cga cta ctc att atc aca act caa | 672 |
| Gly Ile Pro Ile Asp Leu Leu Asp Arg Leu Leu Ile Ile Thr Thr Gln | |
| 210 215 220 | |
| cct tac aca aag gat gaa att cgt aag att ctg gat atc aga tgt cag | 720 |
| Pro Tyr Thr Lys Asp Glu Ile Arg Lys Ile Leu Asp Ile Arg Cys Gln | |
| 225 230 235 240 | |
| gaa gaa gat gtg gag atg gct gaa gag gca aag gct ttg tta aca cal | 768 |
| Glu Glu Asp Val Glu Met Ala Glu Glu Ala Lys Ala Leu Leu Thr His | |
| 245 250 255 | |
| att ggg gca gaa aca tcc ttg aga tat gcc atc cat ctc att act gct | 816 |
| Ile Gly Ala Glu Thr Ser Leu Arg Tyr Ala Ile His Leu Ile Thr Ala | |
| 260 265 270 | |
| gca gca ttg gca tgc cag aag cga aag gga aag ctt gtg gaa act gag | 864 |
| Ala Ala Leu Ala Cys Gln Lys Arg Lys Gly Lys Leu Val Glu Thr Glu | |

| | | | |
|---|-----|-----|------|
| 275 | 280 | 285 | |
| gac aii agi cga gcl tac aat cig tii cii gal gia aag aga tci aca | | | 912 |
| Asp Ile Ser Arg Ala Tyr Asn Leu Phe Leu Asp Val Lys Arg Ser Thr | | | |
| 290 | 295 | 300 | |
| cag tac cia ala gag tai cag aat cag tac alg tii aat gag gca ccg | | | 960 |
| Gln Tyr Leu Ile Glu Tyr Gln Asn Gln Tyr Met Phe Asn Glu Ala Pro | | | |
| 305 | 310 | 315 | 320 |
| gia gga gaa ggg gac gaa gaa ggg gcc aat gcc alg cii tci | | | 1002 |
| Val Gly Glu Gly Asp Glu Glu Gly Ala Asn Ala Met Leu Ser | | | |
| 325 | 330 | | |
| igaagggcca taagctatgg agtcitligig aaacccitct ccctacttta itcgagcac | | | 1062 |
| gagccctgaa atgaagaaca atggtagact tggatccac ctggccctt atgtatgtct | | | 1122 |
| tciggaattg aaaaaagagt ccaagaaatt tgaatttcai gaaatiggag aactgaacig | | | 1182 |
| tgcttactaa attgctactt tgcaaglaat galagggcac tcacgcttga ctggctaaat | | | 1242 |
| atttaigtiti ttatcalcaa aaaaaaaaaa aaaaaaaa | | | 1280 |
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| <211> 334 | | | |
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| Gly Ala Ala Ser Lys Thr Gly Lys Leu Thr Leu Lys Thr Thr Glu Met | | | |
| 20 | 25 | 30 | |
| Glu Thr Val Tyr Asp Leu Gly Ala Lys Met Ile Glu Ala Leu Gly Lys | | | |
| 35 | 40 | 45 | |
| Glu Lys Val Gln Ser Gly Asp Val Ile Ala Ile Asp Lys Ala Ser Gly | | | |
| 50 | 55 | 60 | |
| Lys Ile Thr Lys Leu Gly Arg Ser Phe Ser Arg Ser Arg Asp Tyr Asp | | | |
| 65 | 70 | 75 | 80 |

| | | | |
|---|-----|-----|-----|
| Ala Met Gly Pro Gln Val Lys Phe Val Gln Cys Pro Asp Gly Glu Leu | 85 | 90 | 95 |
| Gln Lys Arg Lys Glu Val Val His Cys Val Ser Leu His Glu Ile Asp | 100 | 105 | 110 |
| Val Ile Asn Ser Arg Thr Gln Gly Phe Leu Ala Leu Phe Thr Gly Asp | 115 | 120 | 125 |
| Thr Gly Glu Ile Arg Ala Glu Val Arg Glu Gln Ile Asp Thr Lys Val | 130 | 135 | 140 |
| Ala Glu Trp Arg Glu Glu Gly Lys Ala Glu Ile Val Pro Gly Val Leu | 145 | 150 | 155 |
| Phe Ile Asp Glu Val His Met Leu Asp Ile Glu Cys Phe Ser Phe Leu | 165 | 170 | 175 |
| Asn Arg Ala Leu Glu Asn Glu Met Ala Pro Ile Leu Val Val Ala Thr | 180 | 185 | 190 |
| Asn Arg Gly Ile Thr Thr Ile Arg Gly Thr Asn Tyr Lys Ser Pro His | 195 | 200 | 205 |
| Gly Ile Pro Ile Asp Leu Leu Asp Arg Leu Leu Ile Ile Thr Thr Gln | 210 | 215 | 220 |
| Pro Tyr Thr Lys Asp Glu Ile Arg Lys Ile Leu Asp Ile Arg Cys Gln | 225 | 230 | 235 |
| Glu Glu Asp Val Glu Met Ala Glu Glu Ala Lys Ala Leu Leu Thr His | 245 | 250 | 255 |
| Ile Gly Ala Glu Thr Ser Leu Arg Tyr Ala Ile His Leu Ile Thr Ala | 260 | 265 | 270 |
| Ala Ala Leu Ala Cys Gln Lys Arg Lys Gly Lys Leu Val Glu Thr Glu | 275 | 280 | 285 |
| Asp Ile Ser Arg Ala Tyr Asn Leu Phe Leu Asp Val Lys Arg Ser Thr | 290 | 295 | 300 |
| Gln Tyr Leu Ile Glu Tyr Gln Asn Gln Tyr Met Phe Asn Glu Ala Pro | 305 | 310 | 315 |
| Val Gly Glu Gly Asp Glu Glu Gly Ala Asn Ala Met Leu Ser | | | |

<210> 9
 <211> 420
 <212> DNA
 <213> *Bruguiera sexangula*

<220>
 <221> CDS
 <222> (27)..(194)

<400> 9
 cgaaagiata aagigalcgg cgagcg atg ggt cac tct aac gtc tgg aac tct 53
 Met Gly His Ser Asn Val Trp Asn Ser
 1 5

cac ccc aag aac tac ggc cct ggt tcc cgc gcc tgt cgg glg tgt ggg 101
 His Pro Lys Asn Tyr Gly Pro Gly Ser Arg Ala Cys Arg Val Cys Gly
 10 15 20 25

aat ccg cac ggg ttg atc agg aag tac gga ctc atg tgc tgc aga cag 149
 Asn Pro His Gly Leu Ile Arg Lys Tyr Gly Leu Met Cys Cys Arg Gln
 30 35 40

tgc ttc cgt agc aat gcc aag gaa att ggc ttc att aag tac cgc 194
 Cys Phe Arg Ser Asn Ala Lys Glu Ile Gly Phe Ile Lys Tyr Arg
 45 50 55

tgaatgalat cgatatggcc cagaatggcc tglggcgggtg cgtgttcgat ttcagtagtt 254

ccccctcttc ggaatgagctt taggacaatg ttcctctttag tttatgtatt gtigaacttg 314

gacigatgtt gaactaacga tatcttgga tcatitgata tttcgagagt ttattatttt 374

gatcalcaic ctcttgcttc tctgctttaa aaaaaaaaaa aaaaaa 420

<210> 10
 <211> 56
 <212> PRT
 <213> *Bruguiera sexangula*

<400> 10
 Met Gly His Ser Asn Val Trp Asn Ser His Pro Lys Asn Tyr Gly Pro

| | |
|---|-----|
| acg gtc att gat gct cct gga cat cgt gac ttt att aag aat atg atc | 342 |
| Thr Val Ile Asp Ala Pro Gly His Arg Asp Phe Ile Lys Asn Met Ile | |
| 90 95 100 | |
| acc ggg act tcc caa gct gac tgt gct gtc ctc atc att gac tct acc | 390 |
| Thr Gly Thr Ser Gln Ala Asp Cys Ala Val Leu Ile Ile Asp Ser Thr | |
| 105 110 115 | |
| act ggt ggc ttt gag gct ggt atc tct aaa gat ggt cag acc cgc gag | 438 |
| Thr Gly Gly Phe Glu Ala Gly Ile Ser Lys Asp Gly Gln Thr Arg Glu | |
| 120 125 130 135 | |
| cat gcc ctg ctt gcc ttc acc ctt ggt gtt aag caa atg att tgc tgc | 486 |
| His Ala Leu Leu Ala Phe Thr Leu Gly Val Lys Gln Met Ile Cys Cys | |
| 140 145 150 | |
| tgc aac aag atg gat gct acc act tcc aag tat tct aag gca aga tat | 534 |
| Cys Asn Lys Met Asp Ala Thr Thr Ser Lys Tyr Ser Lys Ala Arg Tyr | |
| 155 160 165 | |
| gat gaa att gtt aag gaa gtg tca tcc tac ttg aag aag gtt ggt tac | 582 |
| Asp Glu Ile Val Lys Glu Val Ser Ser Tyr Leu Lys Lys Val Gly Tyr | |
| 170 175 180 | |
| aac cca gag aag att cct ttt gtc ccc ata tct gga ttt gag ggt gac | 630 |
| Asn Pro Glu Lys Ile Pro Phe Val Pro Ile Ser Gly Phe Glu Gly Asp | |
| 185 190 195 | |
| aac atg att gag aga tcc acc aac ctt gac tgg tac aag ggc cca act | 678 |
| Asn Met Ile Glu Arg Ser Thr Asn Leu Asp Trp Tyr Lys Gly Pro Thr | |
| 200 205 210 215 | |
| ctt ctt gag gcc ctg gac atg atc cag gag cca aag agg cca tca gat | 726 |
| Leu Leu Glu Ala Leu Asp Met Ile Gln Glu Pro Lys Arg Pro Ser Asp | |
| 220 225 230 | |
| aag ccc ctc cgt ctc cca ctt cag gat gtg tac aag att ggt ggt att | 774 |
| Lys Pro Leu Arg Leu Pro Leu Gln Asp Val Tyr Lys Ile Gly Gly Ile | |
| 235 240 245 | |
| ggg aca gtc cca gtg ggt cgt gtt gaa act ggt gtc ctg aag cct gga | 822 |
| Gly Thr Val Pro Val Gly Arg Val Glu Thr Gly Val Leu Lys Pro Gly | |
| 250 255 260 | |
| atg gtt gtt act ttt ggt ccc tca gga ctg acc act gaa gtt aag tct | 870 |

| | |
|---|------|
| Met Val Val Thr Phe Gly Pro Ser Gly Leu Thr Thr Glu Val Lys Ser | |
| 265 270 275 | |
| gtg gag aig cac cat gaa gct ctc caa gag gct ctt ccc gga gac aac | 918 |
| Val Glu Met His His Glu Ala Leu Gln Glu Ala Leu Pro Gly Asp Asn | |
| 280 285 290 295 | |
| gtt ggc ttc aat gtt aag aat gtt tcc glg aag gat ctt aag cgg ggt | 966 |
| Val Gly Phe Asn Val Lys Asn Val Ser Val Lys Asp Leu Lys Arg Gly | |
| 300 305 310 | |
| tat gtt gcc tca aac tcc aag gat gat cct gcc aag gag gca tct agc | 1014 |
| Tyr Val Ala Ser Asn Ser Lys Asp Asp Pro Ala Lys Glu Ala Ser Ser | |
| 315 320 325 | |
| ttc acc tcc caa gtt atc atc atg aac cac cct ggt cag att gga aat | 1062 |
| Phe Thr Ser Gln Val Ile Ile Met Asn His Pro Gly Gln Ile Gly Asn | |
| 330 335 340 | |
| ggt tat gcc cct gtt ctg gat tgc cac acc tct cac att gct gtc aag | 1110 |
| Gly Tyr Ala Pro Val Leu Asp Cys His Thr Ser His Ile Ala Val Lys | |
| 345 350 355 | |
| ttt tct gag atc ctc aca aag att gat agg cga tct ggc aag gag ctt | 1158 |
| Phe Ser Glu Ile Leu Thr Lys Ile Asp Arg Arg Ser Gly Lys Glu Leu | |
| 360 365 370 375 | |
| gaa aag gag ccc aag ttc ttg aag aat ggt gat gct ggg ttc gtg aag | 1206 |
| Glu Lys Glu Pro Lys Phe Leu Lys Asn Gly Asp Ala Gly Phe Val Lys | |
| 380 385 390 | |
| atg att ccg acc aag cct atg gtg gtg gaa act ttc tcc gag tat cct | 1254 |
| Met Ile Pro Thr Lys Pro Met Val Val Glu Thr Phe Ser Glu Tyr Pro | |
| 395 400 405 | |
| ccg ctt ggt aga ttt gcc gtc agg gac atg cgc cag act gtt gca gtg | 1302 |
| Pro Leu Gly Arg Phe Ala Val Arg Asp Met Arg Gln Thr Val Ala Val | |
| 410 415 420 | |
| gga gtc atc aag agt gtc gag aaa aag gaa cct tct gga gct aag gtg | 1350 |
| Gly Val Ile Lys Ser Val Glu Lys Lys Glu Pro Ser Gly Ala Lys Val | |
| 425 430 435 | |
| act aaa tct gct gcc aag aag ggt ggc aaa tgaaccgtgc aagtcagagt | 1400 |
| Thr Lys Ser Ala Ala Lys Lys Gly Gly Lys | |
| 440 445 | |

tgaatgagat gaaggctatt ggaagaataa agacggggcc ctggtagcg gctaaattat 1460
 tggatgttca gcagttgggt tggagaacta cagtttcaat tcagcgccat calcacggag 1520
 ctgttgttcc cagaattggg ttcttgaccg tcggtagcat tggctgttgg tttagatgac 1580
 ttctttgtgt catgtttaga cttaacgga ttgctattt cataaagcgg ctggggaatt 1640
 ttaaaaaaaaa aaaaaaaaaa aaaa 1664

<210> 12
 <211> 449
 <212> PRT
 <213> Bruguiera sexangula

<400> 12
 Met Gly Lys Glu Lys Ile His Ile Asn Ile Val Val Ile Gly His Val
 1 5 10 15
 Asp Ser Gly Lys Ser Thr Thr Thr Gly His Leu Ile Tyr Lys Leu Gly
 20 25 30
 Gly Ile Asp Lys Arg Val Ile Glu Arg Phe Glu Lys Glu Ala Ala Glu
 35 40 45
 Met Asn Lys Arg Ser Phe Lys Tyr Ala Trp Val Leu Asp Lys Leu Lys
 50 55 60
 Ala Glu Arg Glu Arg Gly Ile Thr Ile Asp Ile Ala Leu Trp Lys Phe
 65 70 75 80
 Glu Thr Thr Lys Tyr Tyr Cys Thr Val Ile Asp Ala Pro Gly His Arg
 85 90 95
 Asp Phe Ile Lys Asn Met Ile Thr Gly Thr Ser Gln Ala Asp Cys Ala
 100 105 110
 Val Leu Ile Ile Asp Ser Thr Thr Gly Gly Phe Glu Ala Gly Ile Ser
 115 120 125
 Lys Asp Gly Gln Thr Arg Glu His Ala Leu Leu Ala Phe Thr Leu Gly
 130 135 140
 Val Lys Gln Met Ile Cys Cys Cys Asn Lys Met Asp Ala Thr Thr Ser

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| 145 | | 150 | | 155 | | 160 |
| Lys Tyr Ser Lys Ala Arg Tyr Asp Glu Ile Val Lys Glu Val Ser Ser | | | | | | |
| | 165 | | 170 | | 175 | |
| Tyr Leu Lys Lys Val Gly Tyr Asn Pro Glu Lys Ile Pro Phe Val Pro | | | | | | |
| | 180 | | 185 | | 190 | |
| Ile Ser Gly Phe Glu Gly Asp Asn Met Ile Glu Arg Ser Thr Asn Leu | | | | | | |
| | 195 | | 200 | | 205 | |
| Asp Trp Tyr Lys Gly Pro Thr Leu Leu Glu Ala Leu Asp Met Ile Gln | | | | | | |
| | 210 | | 215 | | 220 | |
| Glu Pro Lys Arg Pro Ser Asp Lys Pro Leu Arg Leu Pro Leu Gln Asp | | | | | | |
| | 225 | | 230 | | 235 | 240 |
| Val Tyr Lys Ile Gly Gly Ile Gly Thr Val Pro Val Gly Arg Val Glu | | | | | | |
| | | 245 | | 250 | | 255 |
| Thr Gly Val Leu Lys Pro Gly Met Val Val Thr Phe Gly Pro Ser Gly | | | | | | |
| | 260 | | 265 | | 270 | |
| Leu Thr Thr Glu Val Lys Ser Val Glu Met His His Glu Ala Leu Gln | | | | | | |
| | 275 | | 280 | | 285 | |
| Glu Ala Leu Pro Gly Asp Asn Val Gly Phe Asn Val Lys Asn Val Ser | | | | | | |
| | 290 | | 295 | | 300 | |
| Val Lys Asp Leu Lys Arg Gly Tyr Val Ala Ser Asn Ser Lys Asp Asp | | | | | | |
| | 305 | | 310 | | 315 | 320 |
| Pro Ala Lys Glu Ala Ser Ser Phe Thr Ser Gln Val Ile Ile Met Asn | | | | | | |
| | | 325 | | 330 | | 335 |
| His Pro Gly Gln Ile Gly Asn Gly Tyr Ala Pro Val Leu Asp Cys His | | | | | | |
| | 340 | | 345 | | 350 | |
| Thr Ser His Ile Ala Val Lys Phe Ser Glu Ile Leu Thr Lys Ile Asp | | | | | | |
| | 355 | | 360 | | 365 | |
| Arg Arg Ser Gly Lys Glu Leu Glu Lys Glu Pro Lys Phe Leu Lys Asn | | | | | | |
| | 370 | | 375 | | 380 | |
| Gly Asp Ala Gly Phe Val Lys Met Ile Pro Thr Lys Pro Met Val Val | | | | | | |
| | 385 | | 390 | | 395 | 400 |

Glu Thr Phe Ser Glu Tyr Pro Pro Leu Gly Arg Phe Ala Val Arg Asp
 405 410 415

Met Arg Gln Thr Val Ala Val Gly Val Ile Lys Ser Val Glu Lys Lys
 420 425 430

Glu Pro Ser Gly Ala Lys Val Thr Lys Ser Ala Ala Lys Lys Gly Gly
 435 440 445

Lys

<210> 13
 <211> 770
 <212> DNA
 <213> *Bruguiera sexangula*

<220>
 <221> CDS
 <222> (2).. (769)

<400> 13
 c gat gat atg gac gag gcc aca ccc acc ttt gtt tgg ggc acc aat atc 49
 Asp Asp Met Asp Glu Ala Thr Pro Thr Phe Val Trp Gly Thr Asn Ile
 1 5 10 15
 agc gtg cag gat gtc aag gcc gct att cag atg ttt ttg aag cac ttc 97
 Ser Val Gln Asp Val Lys Ala Ala Ile Gln Met Phe Leu Lys His Phe
 20 25 30
 agg gat agt aat cag agt caa agg aac gag att ttt gaa gaa ggg aag 145
 Arg Asp Ser Asn Gln Ser Gln Arg Asn Glu Ile Phe Glu Glu Gly Lys
 35 40 45
 tac gtg aaa gcg ata cat aag gtt ctt gaa gtt gaa gga gag tcg ctt 193
 Tyr Val Lys Ala Ile His Lys Val Leu Glu Val Glu Gly Glu Ser Leu
 50 55 60
 gat gtt gat gct cgt gat gtg ttt gat tat gat tct gat ttg tat gcc 241
 Asp Val Asp Ala Arg Asp Val Phe Asp Tyr Asp Ser Asp Leu Tyr Ala
 65 70 75 80
 aag atg att cgg tac cca ctt gag gtt ttg gcc att ttc gac att gtt 289

| | |
|---|-----|
| Lys Met Ile Arg Tyr Pro Leu Glu Val Leu Ala Ile Phe Asp Ile Val | |
| 85 90 95 | |
| ttg atg gat att gig agt ttg atc aac cct ttg ttt gag aaa cat gta | 337 |
| Leu Met Asp Ile Val Ser Leu Ile Asn Pro Leu Phe Glu Lys His Val | |
| 100 105 110 | |
| caa gtc agg att ttc aat ctt aag acc tgc att aca atg aga aat ctc | 385 |
| Gln Val Arg Ile Phe Asn Leu Lys Thr Ser Ile Thr Met Arg Asn Leu | |
| 115 120 125 | |
| aac cct tct gat atc gaa aag atg gtc tca ttg aag gga atg ala att | 433 |
| Asn Pro Ser Asp Ile Glu Lys Met Val Ser Leu Lys Gly Met Ile Ile | |
| 130 135 140 | |
| cgg tgt agt tcc ala ala ccg gag atc agg gaa gca gta ttt aga tgc | 481 |
| Arg Cys Ser Ser Ile Ile Pro Glu Ile Arg Glu Ala Val Phe Arg Cys | |
| 145 150 155 160 | |
| ctt gtt tgt ggc tac ttc tct gat ccc atc gtt gtg gat aga gga cgg | 529 |
| Leu Val Cys Gly Tyr Phe Ser Asp Pro Ile Val Val Asp Arg Gly Arg | |
| 165 170 175 | |
| ata agt gaa cct aaa gca tgc ttg aaa gag gaa tgt ctt act aag aac | 577 |
| Ile Ser Glu Pro Lys Ala Cys Leu Lys Glu Glu Cys Leu Thr Lys Asn | |
| 180 185 190 | |
| tcc atg aca cta gtt cac aat cgt tgc agg ttt gct gat aag cag att | 625 |
| Ser Met Thr Leu Val His Asn Arg Cys Arg Phe Ala Asp Lys Gln Ile | |
| 195 200 205 | |
| gtg agg ctc cag gag aca cct gac gag atc cct gaa gga gga aca cca | 673 |
| Val Arg Leu Gln Glu Thr Pro Asp Glu Ile Pro Glu Gly Gly Thr Pro | |
| 210 215 220 | |
| cac acg gig agc tta ttg atg cat gac aag ctg gla gat gct gga aag | 721 |
| His Thr Val Ser Leu Leu Met His Asp Lys Leu Val Asp Ala Gly Lys | |
| 225 230 235 240 | |
| cca ggt gac agg gtt gag gtc act gga att tat agg gct atg agt gtt a | 770 |
| Pro Gly Asp Arg Val Glu Val Thr Gly Ile Tyr Arg Ala Met Ser Val | |
| 245 250 255 | |

<210> 14
<211> 256

<212> PRT

<213> *Bruguiera sexangula*

<400> 14

Asp Asp Met Asp Glu Ala Thr Pro Thr Phe Val Trp Gly Thr Asn Ile
1 5 10 15

Ser Val Gln Asp Val Lys Ala Ala Ile Gln Met Phe Leu Lys His Phe
20 25 30

Arg Asp Ser Asn Gln Ser Gln Arg Asn Glu Ile Phe Glu Glu Gly Lys
35 40 45

Tyr Val Lys Ala Ile His Lys Val Leu Glu Val Glu Gly Glu Ser Leu
50 55 60

Asp Val Asp Ala Arg Asp Val Phe Asp Tyr Asp Ser Asp Leu Tyr Ala
65 70 75 80

Lys Met Ile Arg Tyr Pro Leu Glu Val Leu Ala Ile Phe Asp Ile Val
85 90 95

Leu Met Asp Ile Val Ser Leu Ile Asn Pro Leu Phe Glu Lys His Val
100 105 110

Gln Val Arg Ile Phe Asn Leu Lys Thr Ser Ile Thr Met Arg Asn Leu
115 120 125

Asn Pro Ser Asp Ile Glu Lys Met Val Ser Leu Lys Gly Met Ile Ile
130 135 140

Arg Cys Ser Ser Ile Ile Pro Glu Ile Arg Glu Ala Val Phe Arg Cys
145 150 155 160

Leu Val Cys Gly Tyr Phe Ser Asp Pro Ile Val Val Asp Arg Gly Arg
165 170 175

Ile Ser Glu Pro Lys Ala Cys Leu Lys Glu Glu Cys Leu Thr Lys Asn
180 185 190

Ser Met Thr Leu Val His Asn Arg Cys Arg Phe Ala Asp Lys Gln Ile
195 200 205

Val Arg Leu Gln Glu Thr Pro Asp Glu Ile Pro Glu Gly Gly Thr Pro
210 215 220

His Thr Val Ser Leu Leu Met His Asp Lys Leu Val Asp Ala Gly Lys
 225 230 235 240

Pro Gly Asp Arg Val Glu Val Thr Gly Ile Tyr Arg Ala Met Ser Val
 245 250 255

<210> 15

<211> 846

<212> DNA

<213> Mesembryanthemum crystallinum

<220>

<221> CDS

<222> (39).. (530)

<400> 15

caaattttct ttgcgtgaatc gaatctacaa. aataccig atg ggt cag gtt ctt gac 56
 Met Gly Gln Val Leu Asp
 1 5

aaa ttt caa cgt aag caa tgg aga caa aag caa atc cag aag ata aca 104
 Lys Phe Gln Arg Lys Gln Trp Arg Gln Lys Gln Ile Gln Lys Ile Thr
 10 15 20

gat aag gta ttt gat cgt gtc aaa agt ccg acc gga aat ggc act ctt 152
 Asp Lys Val Phe Asp Arg Val Lys Ser Pro Thr Gly Asn Gly Thr Leu
 25 30 35

aca ttt gaa gag ctg tat ata gct acc ctg att gtc tac aat gat ata 200
 Thr Phe Glu Glu Leu Tyr Ile Ala Thr Leu Ile Val Tyr Asn Asp Ile
 40 45 50

aac aag tat ttg ccg ggg ccg cac ttt gat cct cca tcg aaa gac aaa 248
 Asn Lys Tyr Leu Pro Gly Pro His Phe Asp Pro Pro Ser Lys Asp Lys
 55 60 65 70

atc aga gcc ttg atg cag gaa tgc gat atg gat gtc gat gga gaa ctt 296
 Ile Arg Ala Leu Met Gln Glu Cys Asp Met Asp Val Asp Gly Glu Leu
 75 80 85

aac cgt gag gaa ttt gtg aag ttc atg cag aag gtg aca gcc gat aca 344
 Asn Arg Glu Glu Phe Val Lys Phe Met Gln Lys Val Thr Ala Asp Thr
 90 95 100

ttc tct acg gtc agc cag gga ctg att atc tct ctg att ctg gcg cca 392
 Phe Ser Thr Val Ser Gln Gly Leu Ile Ile Ser Leu Ile Leu Ala Pro
 105 110 115

aca gtt gca ttg gcg acg aag agg gca aca gaa ggt gtt cca ggt gtg 440
 Thr Val Ala Leu Ala Thr Lys Arg Ala Thr Glu Gly Val Pro Gly Val
 120 125 130

ggg aaa gtg gtg caa aag gtg cct act tca att tat gca tcc ctg gtg 488
 Gly Lys Val Val Gln Lys Val Pro Thr Ser Ile Tyr Ala Ser Leu Val
 135 140 145 150

acc ctt gtt gtc gtt gca atc caa act gct agc gag gga tgc 530
 Thr Leu Val Val Val Ala Ile Gln Thr Ala Ser Glu Gly Cys
 155 160

tgattagagg ctttagttac ttgttcaiga tacagaagga acagtcttgg tcaattttatt 590

tcititttttaa taggacataa ggaagttgta tatcttttctt ctltcttcta ccaggttttg 650

ggggaagttg gaaagaacat acaaatgatt tcaactgcgt atggctgat cctccatttt 710

attaaaactt gtctgttcta gcatgagcga ttcaataattt gcaataatgca atatttgtaa 770

tgaigtctac attcagtgat tagtgtgatt gtgcagtttg ttgggaaaaa aaaaaaaaaa 830

aaaaaaaaa aaaaaa 846

<210> 16

<211> 164

<212> PRT

<213> Mesembryanthemum crystallinum

<400> 16

Met Gly Gln Val Leu Asp Lys Phe Gln Arg Lys Gln Trp Arg Gln Lys

1

5

10

15

Gln Ile Gln Lys Ile Thr Asp Lys Val Phe Asp Arg Val Lys Ser Pro

20

25

30

Thr Gly Asn Gly Thr Leu Thr Phe Glu Glu Leu Tyr Ile Ala Thr Leu

35

40

45

Ile Val Tyr Asn Asp Ile Asn Lys Tyr Leu Pro Gly Pro His Phe Asp

50

55

60

Pro Pro Ser Lys Asp Lys Ile Arg Ala Leu Met Gln Glu Cys Asp Met
 65 70 75 80
 Asp Val Asp Gly Glu Leu Asn Arg Glu Glu Phe Val Lys Phe Met Gln
 85 90 95
 Lys Val Thr Ala Asp Thr Phe Ser Thr Val Ser Gln Gly Leu Ile Ile
 100 105 110
 Ser Leu Ile Leu Ala Pro Thr Val Ala Leu Ala Thr Lys Arg Ala Thr
 115 120 125
 Glu Gly Val Pro Gly Val Gly Lys Val Val Gln Lys Val Pro Thr Ser
 130 135 140
 Ile Tyr Ala Ser Leu Val Thr Leu Val Val Val Ala Ile Gln Thr Ala
 145 150 155 160
 Ser Glu Gly Cys

<210> 17
 <211> 872
 <212> DNA
 <213> Mesembryanthemum crystallinum

<220>
 <221> CDS
 <222> (183)..(569)

<400> 17
 aacaaaatgt ctcctcctctt cctcttctctt ttctcttctt ctcctcttcgt ggggttgattg 60
 agtaagctct gtccttttgc tctctgttga atgtactatc ttctgtgaac caaaggccaa 120
 agattaacta ttggagattt cctctactcga aatttgtttt taggtgttga cccgtttgag 180
 ct atg gcg aac aag ccc caa att cca acg aag aat tcg gcc ctc att 227
 Met Ala Asn Lys Pro Gln Ile Pro Thr Lys Asn Ser Ala Leu Ile
 1 5 10 15
 gct att atc gcg gat gag gat act gla act gga ttt ttg ctg gct gga 275
 Ala Ile Ile Ala Asp Glu Asp Thr Val Thr Gly Phe Leu Leu Ala Gly

| 20 | 25 | 30 | |
|--|-----|-----|-----|
| glt ggt aat glt gat cta cga aga cag aca aat tac att att glg gac | | | 323 |
| Val Gly Asn Val Asp Leu Arg Arg Gln Thr Asn Tyr Ile Ile Val Asp | | | |
| 35 | 40 | 45 | |
| aat aaa aca acg atg aag caa atc gaa gat gca ttc aag gag ttc aca | | | 371 |
| Asn Lys Thr Thr Met Lys Gln Ile Glu Asp Ala Phe Lys Glu Phe Thr | | | |
| 50 | 55 | 60 | |
| gca aga gag gac att gcg gtt gla cta atc agc caa tat gtt gca aat | | | 419 |
| Ala Arg Glu Asp Ile Ala Val Val Leu Ile Ser Gln Tyr Val Ala Asn | | | |
| 65 | 70 | 75 | |
| atg ata aga gla ttg gtt gat agc tac aac aaa cca atc ccg gca att | | | 467 |
| Met Ile Arg Val Leu Val Asp Ser Tyr Asn Lys Pro Ile Pro Ala Ile | | | |
| 80 | 85 | 90 | 95 |
| ttg gag att cct tca aag gac cat cct tat gat cct aac cat gat tca | | | 515 |
| Leu Glu Ile Pro Ser Lys Asp His Pro Tyr Asp Pro Asn His Asp Ser | | | |
| 100 | 105 | 110 | |
| gtc ctt tca agg gtt aaa tac ctg ttc tct tct gaa tcg gca tca agc | | | 563 |
| Val Leu Ser Arg Val Lys Tyr Leu Phe Ser Ser Glu Ser Ala Ser Ser | | | |
| 115 | 120 | 125 | |
| aga ttt tagccataatg ctttgtaaag ttccctgcct ctgaatgttt ggtagattatg | | | 619 |
| Arg Phe | | | |
| agtttaaaact agaaccagtc acattctgac ttggtatttt gaggcactgt ttgttttaag | | | 679 |
| ttcttaaaat aaggagtgta attacgactc catgaatcgg gatatgactc catgaatcgc | | | 739 |
| atgtatttct ttccatctca ttgaaagag tgcagcagcc atatcatlta gtltcttcc | | | 799 |
| cttgcgaatg agcttgggaag aaatgttttg gctataaaag atttcaactc ttggtacaaa | | | 859 |
| aaaaaaaaa aaa | | | 872 |

<210> 18

<211> 129

<212> PRT

<213> Mesembryanthemum crystallinum

<400> 18

Met Ala Asn Lys Pro Gln Ile Pro Thr Lys Asn Ser Ala Leu Ile Ala
 1 5 10 15
 Ile Ile Ala Asp Glu Asp Thr Val Thr Gly Phe Leu Leu Ala Gly Val
 20 25 30
 Gly Asn Val Asp Leu Arg Arg Gln Thr Asn Tyr Ile Ile Val Asp Asn
 35 40 45
 Lys Thr Thr Met Lys Gln Ile Glu Asp Ala Phe Lys Glu Phe Thr Ala
 50 55 60
 Arg Glu Asp Ile Ala Val Val Leu Ile Ser Gln Tyr Val Ala Asn Met
 65 70 75 80
 Ile Arg Val Leu Val Asp Ser Tyr Asn Lys Pro Ile Pro Ala Ile Leu
 85 90 95
 Glu Ile Pro Ser Lys Asp His Pro Tyr Asp Pro Asn His Asp Ser Val
 100 105 110
 Leu Ser Arg Val Lys Tyr Leu Phe Ser Ser Glu Ser Ala Ser Ser Arg
 115 120 125
 Phe

<210> 19
 <211> 647
 <212> DNA
 <213> Mesembryanthemum crystallinum

<220>
 <221> CDS
 <222> (64)..(426)

<400> 19
 cttgtttttc tctctctctt ctcctctctt tctccgcacc ctcaggcagt gaaggttagca 60
 aca atg gcg tac gcg atg aag cca acg aag ccc ggg atg gag gaa tcc 108
 Met Ala Tyr Ala Met Lys Pro Thr Lys Pro Gly Met Glu Glu Ser
 1 5 10 15
 cag gag cag att cac aag atc agg atc act ctt tct tct aag aac gtc 156

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 20 | | 25 | | 30 | | | | | | | | | | |
| Asn | Leu | Glu | Lys | Val | Cys | Ala | Asp | Leu | Val | Arg | Gly | Ala | Lys | Asp | Lys |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Arg | Leu | Arg | Val | Lys | Gly | Pro | Val | Arg | Met | Pro | Thr | Lys | Val | Leu | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Thr | Thr | Arg | Lys | Ser | Pro | Cys | Gly | Glu | Gly | Thr | Asn | Thr | Phe | Asp |
| | 65 | | | | 70 | | | | 75 | | | | | 80 | |
| Arg | Phe | Glu | Leu | Arg | Val | His | Lys | Arg | Val | Ile | Asp | Leu | Phe | Ser | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Asp | Val | Val | Lys | Gln | Ile | Thr | Ser | Ile | Thr | Ile | Glu | Pro | Gly | Val |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Glu | Val | Glu | Val | Thr | Ile | Ala | Asp | Ser | | | | | | | |
| | | 115 | | | | | 120 | | | | | | | | |

<210> 21
 <211> 686
 <212> DNA
 <213> Sueada japonica

<220>
 <221> CDS
 <222> (62)..(493)

<400> 21
 acaccattca caaaacacat taaaaaaaa cactacttct ttctttctta gccacttgaa 60

 a atg gcc tac tca aag gct gla ctc ctt gcc ctt atc ttt gct gtg act 109
 Met Ala Tyr Ser Lys Ala Val Leu Leu Ala Leu Ile Phe Ala Val Thr
 1 5 10 15

 ctt glc att gcc tct cag glc tca gct cgt gaa ctt gct gag gag aca 157
 Leu Val Ile Ala Ser Gln Val Ser Ala Arg Glu Leu Ala Glu Glu Thr
 20 25 30

 caa tct gtg gag gag tct aag gga tac ggt ggt ggg cac gga ggt cac 205
 Gln Ser Val Glu Glu Ser Lys Gly Tyr Gly Gly Gly His Gly Gly His
 35 40 45

tat ggt ggt ggt cac tat ggt ggt gga cac aga cac ggt ggc cat gga 253
 Tyr Gly Gly Gly His Tyr Gly Gly Gly His Arg His Gly Gly His Gly
 50 55 60

cac tac gca act gag gaa gca gag aac aag aat gaa gcc gla gaa cct 301
 His Tyr Ala Thr Glu Glu Ala Glu Asn Lys Asn Glu Ala Val Glu Pro
 65 70 75 80

caa ggc ggc tat ggt cac gga cac gga gga ggc tac gga cac ggt ggt 349
 Gln Gly Gly Tyr Gly His Gly His Gly Gly Tyr Gly His Gly Gly
 85 90 95

ggc tac gga cac ggt gga ggc tac gga cac gga ggt ggc tac ggg cac 397
 Gly Tyr Gly His Gly Gly Gly Tyr Gly His Gly Gly Gly Tyr Gly His
 100 105 110

ggt ggt ggc tac gga cat gga ggt ggt tat gga cac ggt gga cac ggt 445
 Gly Gly Gly Tyr Gly His Gly Gly Gly Tyr Gly His Gly Gly His Gly
 115 120 125

gga cat ggt ggt cat ggt cac tac gcc aag act acc gag gaa caa aat 493
 Gly His Gly Gly His Gly His Tyr Ala Lys Thr Thr Glu Glu Gln Asn
 130 135 140

taagtatatggtttactaaaa cttaaattgt acgttgtcaa ataaaaatgta ctttatgatt 553

ttacatgagt atgcatgtaa ttcatcataa gcttcaagga ctatcttgta cttatgttta 613

tataacctata tgaatggaa gcgtgacttt tattactgta aaaaaaaaaa aaaaaaaaaa 673

aaaaaaaaaa aaa 686

<210> 22

<211> 144

<212> PRT

<213> Sueada japonica

<400> 22

Met Ala Tyr Ser Lys Ala Val Leu Leu Ala Leu Ile Phe Ala Val Thr
 1 5 10 15

Leu Val Ile Ala Ser Gln Val Ser Ala Arg Glu Leu Ala Glu Glu Thr
 20 25 30

Gln Ser Val Glu Glu Ser Lys Gly Tyr Gly Gly Gly His Gly Gly His

| | 40 | 45 | 50 | |
|---|-----|----|----|-----|
| acg gtg agg tgc agc gcc tgc aag agg cca aac cta tgc aac agg tca | | | | 248 |
| Thr Val Arg Cys Ser Ala Ser Lys Arg Pro Asn Leu Cys Asn Arg Ser | | | | |
| | 55 | 60 | 65 | |
| lgt ggc agt lgt tgc aag acg tgc aac tgc gtg cca cca ggc act tcc | | | | 296 |
| Cys Gly Ser Cys Cys Lys Thr Cys Asn Cys Val Pro Pro Gly Thr Ser | | | | |
| | 70 | 75 | 80 | |
| ggc aac tac gaa gcc tgc cct lgt tac gcc aac ttg acc acc cac ggc | | | | 344 |
| Gly Asn Tyr Glu Ala Cys Pro Cys Tyr Ala Asn Leu Thr Thr His Gly | | | | |
| | 85 | 90 | 95 | |
| aat cga cac aag tgc cct taattaacaa gaattgttta gtgttttatt | | | | 392 |
| Asn Arg His Lys Cys Pro | | | | |
| 100 | 105 | | | |
| acaaccgtac caigtaacgt acicclattt acactactag agtactagta ataaacattt | | | | 452 |
| ttaggcacgg tccagltgtt calgtagcia gtggatatt gagtcataaa tgagtattg | | | | 512 |
| aaaatgagat atgataaaag tglattatct acattgtagt actgttttgt atcatagtgt | | | | 572 |
| agtgalgttt attttctgta cctttaattt gtlactttgt attccctttc attctatcta | | | | 632 |
| tttacaatcc ttttgttaagt ttatgtgaaa aaaaaaaaaa aaaaaaaaaa a | | | | 683 |

<210> 24
 <211> 105
 <212> PRT
 <213> Salsola komarovii

<400> 24
 Met Ala Phe Ser Lys Pro Leu Ile Ala Ser Leu Leu Leu Ser Leu Phe
 1 5 10 15
 Val Leu Gln Phe Val His Ala Val Glu Pro Ile Ser Ser Ser Asn Gln
 20 25 30
 Val Gly Ser Asn Thr Gly Gly Thr Ser Glu Ser Lys Val Asp Cys Gly
 35 40 45
 Ala Ala Cys Thr Val Arg Cys Ser Ala Ser Lys Arg Pro Asn Leu Cys
 50 55 60

Asn Arg Ser Cys Gly Ser Cys Cys Lys Thr Cys Asn Cys Val Pro Pro
 65 70 75 80
 Gly Thr Ser Gly Asn Tyr Glu Ala Cys Pro Cys Tyr Ala Asn Leu Thr
 85 90 95
 Thr His Gly Asn Arg His Lys Cys Pro
 100 105

<210> 25
 <211> 803
 <212> DNA
 <213> Salsola komarovii

<220>
 <221> CDS
 <222> (51).. (593)

<400> 25
 cgcagacgcl tcagtccttt ctcctccttt ctcctcctc accgigaaag atg ggg 56
 Met Gly
 1
 ttg tca ttt acc aaa ttg ttt agc cgg ttg ttc gct aag aag gaa atg 104
 Leu Ser Phe Thr Lys Leu Phe Ser Arg Leu Phe Ala Lys Lys Glu Met
 5 10 15
 cgt atc ctt atg gtc ggt ctc gat gcc gct ggt aaa acc acc att ctc 152
 Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr Ile Leu
 20 25 30
 tat aaa ctc aag ctg gga gag att gtc acc acc att cct acc att gga 200
 Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr Ile Gly
 35 40 45 50
 ttt aat gtg gag act gla gaa tac aag aac atc agc ttc act gtg tgg 248
 Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr Val Trp
 55 60 65
 gat gtc ggg ggt caa gac aag att cgt cca ttg tgg aga cal tac ttc 296
 Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His Tyr Phe
 70 75 80

caa aac acc caa ggi ctc atc ttt gtg gtt gac agt aat gat cgt gac 344
Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp Arg Asp
85 90 95

cgt gtc gtt gag gca aga gat gaa ctg cat agg atg tta aat gag gat 392
Arg Val Val Glu Ala Arg Asp Glu Leu His Arg Met Leu Asn Glu Asp
100 105 110

gaa tta cga gat gca gtg ttg ttg gtg ttt gca aac aag caa gat ctt 440
Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln Asp Leu
115 120 125 130

ccc aat gca atg aat gct gct gag atc act gat aag ctt ggt ctc cat 488
Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly Leu His
135 140 145

tct cta cgt caa cgc cat tgg tac ata caa agc aca tgt gcc acc tct 536
Ser Leu Arg Gln Arg His Trp Tyr Ile Gln Ser Thr Cys Ala Thr Ser
150 155 160

gga gaa ggg ctt tac gag ggt ctg gac tgg ctc tca aac aat atc gct 584
Gly Glu Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Asn Ile Ala
165 170 175

agc aag gct taaaagtaac agaacgagta aggttagctt tctcagagaa 633
Ser Lys Ala
180

gaagctggag tataggctga ggactatcgt tactgctagt gttacccttt ttatttttgc 693

catllatalg ttacatttt tggttcctat cggacaagaa ttattttctg cgtttatgtt 753

gacttgttat aataccatac ttttagttg aaaaaaaaaa aaaaaaaaaa 803

<210> 26

<211> 181

<212> PRT

<213> Salsola komarovii

<400> 26

Met Gly Leu Ser Phe Thr Lys Leu Phe Ser Arg Leu Phe Ala Lys Lys
1 5 10 15

Glu Met Arg Ile Leu Met Val Gly Leu Asp Ala Ala Gly Lys Thr Thr
20 25 30

Ile Leu Tyr Lys Leu Lys Leu Gly Glu Ile Val Thr Thr Ile Pro Thr
 35 40 45
 Ile Gly Phe Asn Val Glu Thr Val Glu Tyr Lys Asn Ile Ser Phe Thr
 50 55 60
 Val Trp Asp Val Gly Gly Gln Asp Lys Ile Arg Pro Leu Trp Arg His
 65 70 75 80
 Tyr Phe Gln Asn Thr Gln Gly Leu Ile Phe Val Val Asp Ser Asn Asp
 85 90 95
 Arg Asp Arg Val Val Glu Ala Arg Asp Glu Leu His Arg Met Leu Asn
 100 105 110
 Glu Asp Glu Leu Arg Asp Ala Val Leu Leu Val Phe Ala Asn Lys Gln
 115 120 125
 Asp Leu Pro Asn Ala Met Asn Ala Ala Glu Ile Thr Asp Lys Leu Gly
 130 135 140
 Leu His Ser Leu Arg Gln Arg His Trp Tyr Ile Gln Ser Thr Cys Ala
 145 150 155 160
 Thr Ser Gly Glu Gly Leu Tyr Glu Gly Leu Asp Trp Leu Ser Asn Asn
 165 170 175
 Ile Ala Ser Lys Ala
 180

<210> 27

<211> 680

<212> DNA

<213> Avicennia marina

<220>

<221> CDS

<222> (161).. (454)

<400> 27

ctaaaagcca aaggcaagat aagaacagg ttcctttagc tatcttctc gtcctgcctc 60

tgcaaaagtt ccatccccag aagatcagga aaaccttctt gcagcagcac tctaataatc 120

Asn Glu Ile Ser Ala Leu Val Thr Arg Arg Gly Tyr Ala Ala Leu Ala
 20 25 30
 Gln Gly Val Val Ser Ser Ser Ala Arg Ser Gly Gly Ala Pro Asn Val
 35 40 45
 Met Leu Lys Lys Gly Ser Glu Glu Ser Gly Lys Thr Ala Trp Val Pro
 50 55 60
 Asp Pro Asp Thr Gly Tyr Tyr Arg Pro Gly Asn Glu Asp Lys Ala Ala
 65 70 75 80
 Leu Asp Pro Val Glu Leu Arg Glu Met Leu Ile Lys Asn Lys Pro Ser
 85 90 95
 Arg Gln

<210> 29
 <211> 490
 <212> DNA
 <213> Avicennia marina

<220>
 <221> CDS
 <222> (20).. (349)

<400> 29
 tcggctgggc aaagaaggg atg gcg att cca tcg gaa att cgg gac ttt att 52
 Met Ala Ile Pro Ser Glu Ile Arg Asp Phe Ile
 1 5 10
 gct agc cgc aac aga tct ttg gtg atc gca tct cca aag gaa gat gag 100
 Ala Ser Arg Asn Arg Ser Leu Val Ile Ala Ser Pro Lys Glu Asp Glu
 15 20 25
 aaa att ctg cgc tca agg cag tgc acc gaa gaa ggg gcg cgt gca gga 148
 Lys Ile Leu Arg Ser Arg Gln Cys Thr Glu Glu Gly Ala Arg Ala Gly
 30 35 40
 gcc aaa gct gct gca gtt gct tgc gtt gcc agc gcc att ccc act ctg 196
 Ala Lys Ala Ala Ala Val Ala Cys Val Ala Ser Ala Ile Pro Thr Leu
 45 50 55

gta gct gtt cga acg att ccg tgg gca aag gca aac ctc aac tat aca 244
Val Ala Val Arg Thr Ile Pro Trp Ala Lys Ala Asn Leu Asn Tyr Thr
60 65 70 75

gcc cag gca ctc att ata tct tct gca tcc ata gcg gca tac ttt atc 292
Ala Gln Ala Leu Ile Ile Ser Ser Ala Ser Ile Ala Ala Tyr Phe Ile
80 85 90

gct gct gac aaa acc atc tta gag tgc gca cgg aaa aat gca gag tac 340
Ala Ala Asp Lys Thr Ile Leu Glu Cys Ala Arg Lys Asn Ala Glu Tyr
95 100 105

aaa tct gct taagatgatg tgaagacaa tgtgtcagc ttgcaatgct 389
Lys Ser Ala
110

tgcctatgact tgtgtttatg tgtatttcaa gtltctgaaa ctatcatliti gatttttgtt 449

tcctaatgcaa tgagcattat ggaaaaaaaa aaaaaaaaaa a 490

<210> 30

<211> 110

<212> PRT

<213> Avicennia marina

<400> 30

Met Ala Ile Pro Ser Glu Ile Arg Asp Phe Ile Ala Ser Arg Asn Arg
1 5 10 15

Ser Leu Val Ile Ala Ser Pro Lys Glu Asp Glu Lys Ile Leu Arg Ser
20 25 30

Arg Gln Cys Thr Glu Glu Gly Ala Arg Ala Gly Ala Lys Ala Ala Ala
35 40 45

Val Ala Cys Val Ala Ser Ala Ile Pro Thr Leu Val Ala Val Arg Thr
50 55 60

Ile Pro Trp Ala Lys Ala Asn Leu Asn Tyr Thr Ala Gln Ala Leu Ile
65 70 75 80

Ile Ser Ser Ala Ser Ile Ala Ala Tyr Phe Ile Ala Ala Asp Lys Thr
85 90 95

Ile Leu Glu Cys Ala Arg Lys Asn Ala Glu Tyr Lys Ser Ala
100 105 110

<210> 31
<211> 592
<212> DNA
<213> Avicennia marina

<220>
<221> CDS
<222> (75)..(320)

<400> 31
gcagtcacag ccttccctgct cctccgggigc ctccaaattt gtgaatttct cgagtgcctaa 60
aagattcagc caag atg cag aac gaa gag ggg caa aac atg gat ctc tac 110
Met Gln Asn Glu Glu Gly Gln Asn Met Asp Leu Tyr
1 5 10
atc ccc agg aaa tgc tct gcc acg aac agg ctg atc acc tcc aag gat 158
Ile Pro Arg Lys Cys Ser Ala Thr Asn Arg Leu Ile Thr Ser Lys Asp
15 20 25
cat gct tct gtc cag atc aat gtt ggg cac ttg gat gag aat ggc cga 206
His Ala Ser Val Gln Ile Asn Val Gly His Leu Asp Glu Asn Gly Arg
30 35 40
tac act ggc caa tac tct acc ttt gct ctt tgt gga ttc atc cgt gct 254
Tyr Thr Gly Gln Tyr Ser Thr Phe Ala Leu Cys Gly Phe Ile Arg Ala
45 50 55 60
cag ggt gat gct gac agt gct ctt gat agg ctc tgg cag aaa aag aaa 302
Gln Gly Asp Ala Asp Ser Ala Leu Asp Arg Leu Trp Gln Lys Lys Lys
65 70 75
gtc gaa acc agg cag cag tcatcctgct caattcagca gtgaaagttt 350
Val Glu Thr Arg Gln Gln
80
tttgggtttt gtctctgtgt gtgttattta tgcctttcca gaattcaatt ctgtactgga 410
ttgagtttta aaaatgtgga gctaaagggt gggagacctg atgctttgt tactcgagta 470
atcacaagta galactgggc ttglaaatagc gtgataattg tgccttgcct ttgcttcatt 530

gactacgaat caglaatgtg attagacaat gllaatclcc aaaaaaaaaa aaaaaaaaaa 590

aa 592

<210> 32

<211> 82

<212> PRT

<213> Avicennia marina

<400> 32

Met Gln Asn Glu Gly Gln Asn Met Asp Leu Tyr Ile Pro Arg Lys
1 5 10 15

Cys Ser Ala Thr Asn Arg Leu Ile Thr Ser Lys Asp His Ala Ser Val
20 25 30

Gln Ile Asn Val Gly His Leu Asp Glu Asn Gly Arg Tyr Thr Gly Gln
35 40 45

Tyr Ser Thr Phe Ala Leu Cys Gly Phe Ile Arg Ala Gln Gly Asp Ala
50 55 60

Asp Ser Ala Leu Asp Arg Leu Trp Gln Lys Lys Lys Val Glu Thr Arg
65 70 75 80

Gln Gln

<210> 33

<211> 1806

<212> DNA

<213> Avicennia marina

<220>

<221> CDS

<222> (362)..(1552)

<400> 33

tgtagaggta aagctacag catattcgc gccgcicgtt tgattacgtg ttgcttttat 60

ttgggaattt gatagcgcig agtagccgat gccgcicggag gglaattgtt attttaggaa 120

tacgggttllg ttgattcgc agtlltactg tctctagggt tgggccctga ggcttctggg 180
 atttgggall taatcgcga tcaacagtt tctggagaa aatcttctta gtcgcatai 240
 atctgattlg ctgacgagaa attgalacac ggttalcga ttgagttllg ttgctgcaa 300
 agatctccg agtgcctgct agatgtggat aatccggagg gctgttctga tgagatgagg 360
 g atg tta tca ggg tta atg aac ttc ctg tgg gcc tgt ttt cgg cca agg 409
 Met Leu Ser Gly Leu Met Asn Phe Leu Trp Ala Cys Phe Arg Pro Arg
 1 5 10 15
 gcg gat cga agt gtt cac acg ggt tca gat gca ggc ggt cgt cag gat 457
 Ala Asp Arg Ser Val His Thr Gly Ser Asp Ala Gly Gly Arg Gln Asp
 20 25 30
 ggg ctt tta tgg tat aag gac ttg ggg caa cat atc aat gga gag ttt 505
 Gly Leu Leu Trp Tyr Lys Asp Leu Gly Gln His Ile Asn Gly Glu Phe
 35 40 45
 tca atg gct gta gtt caa gca aat aac tta cta gag gat cag agt caa 553
 Ser Met Ala Val Val Gln Ala Asn Asn Leu Leu Glu Asp Gln Ser Gln
 50 55 60
 ctt gaa tct ggt tgc ctg agc ttg agt gat tca gga caa tat ggc act 601
 Leu Glu Ser Gly Cys Leu Ser Leu Ser Asp Ser Gly Gln Tyr Gly Thr
 65 70 75 80
 ttt gtg ggg att tat gat gga cat gga ggt cct gag acc tct cgg ttt 649
 Phe Val Gly Ile Tyr Asp Gly His Gly Gly Pro Glu Thr Ser Arg Phe
 85 90 95
 atc aat gac cat ctc ttc caa cat ata aag aga ttc aca gct gag cat 697
 Ile Asn Asp His Leu Phe Gln His Ile Lys Arg Phe Thr Ala Glu His
 100 105 110
 caa tca atg tca gct gag gtc att cac aag gcc att caa gcg act gaa 745
 Gln Ser Met Ser Ala Glu Val Ile His Lys Ala Ile Gln Ala Thr Glu
 115 120 125
 gaa ggt ttt ttc tgc gtt gtt agc aga caa tgg tcc atg caa cca cag 793
 Glu Gly Phe Phe Ser Val Val Ser Arg Gln Trp Ser Met Gln Pro Gln
 130 135 140
 att gca gca gtt ggc tct tgc tgc ctt gtt ggt glc atc tgt agt ggc 841
 Ile Ala Ala Val Gly Ser Cys Cys Leu Val Gly Val Ile Cys Ser Gly

| | | | | |
|---|-----|-----|-----|------|
| 145 | 150 | 155 | 160 | |
| act ctt tat gtt tcc aac ctt ggt gat tcc cgt gct gtt ctt ggg acg | | | | 889 |
| Thr Leu Tyr Val Ser Asn Leu Gly Asp Ser Arg Ala Val Leu Gly Thr | | | | |
| | 165 | 170 | 175 | |
| ctt tcc aag gct aca ggg gaa gla cag gct act caa ctc tca aca gag | | | | 937 |
| Leu Ser Lys Ala Thr Gly Glu Val Gln Ala Thr Gln Leu Ser Thr Glu | | | | |
| | 180 | 185 | 190 | |
| cat aat gca agt ttt gag tct gtg aga cgg gaa ctg cag tct ctg cac | | | | 985 |
| His Asn Ala Ser Phe Glu Ser Val Arg Arg Glu Leu Gln Ser Leu His | | | | |
| | 195 | 200 | 205 | |
| cca gat gac tca cag att gtg gtt cta aag cat aat gta tgg cga gtg | | | | 1033 |
| Pro Asp Asp Ser Gln Ile Val Val Leu Lys His Asn Val Trp Arg Val | | | | |
| | 210 | 215 | 220 | |
| aag ggt ctt ata cag atc tca aga tca att gga gat gtg tat ttg aaa | | | | 1081 |
| Lys Gly Leu Ile Gln Ile Ser Arg Ser Ile Gly Asp Val Tyr Leu Lys | | | | |
| | 225 | 230 | 235 | 240 |
| aag gct gaa ttc aac agg gag cct cta tat cag aaa ttt cga ctt cgt | | | | 1129 |
| Lys Ala Glu Phe Asn Arg Glu Pro Leu Tyr Gln Lys Phe Arg Leu Arg | | | | |
| | 245 | 250 | 255 | |
| gaa gct ttc aaa aga cca att ttg agc tca gaa cca gaa act act gtg | | | | 1177 |
| Glu Ala Phe Lys Arg Pro Ile Leu Ser Ser Glu Pro Glu Thr Thr Val | | | | |
| | 260 | 265 | 270 | |
| cac cag ctg ctg cct cat gat caa ttc att atc ttc gca tca gat ggc | | | | 1225 |
| His Gln Leu Leu Pro His Asp Gln Phe Ile Ile Phe Ala Ser Asp Gly | | | | |
| | 275 | 280 | 285 | |
| ctt tgg gag cac ctt tcc aac caa gaa gca gtt gat ctt gtt cag aaa | | | | 1273 |
| Leu Trp Glu His Leu Ser Asn Gln Glu Ala Val Asp Leu Val Gln Lys | | | | |
| | 290 | 295 | 300 | |
| cat cca cac aat ggg att gct aga aga tta gla aaa gca gct ttg caa | | | | 1321 |
| His Pro His Asn Gly Ile Ala Arg Arg Leu Val Lys Ala Ala Leu Gln | | | | |
| | 305 | 310 | 315 | 320 |
| gag gca gca aag aaa agg gaa atg agg tac tcg gat ttg aag aaa att | | | | 1369 |
| Glu Ala Ala Lys Lys Arg Glu Met Arg Tyr Ser Asp Leu Lys Lys Ile | | | | |
| | 325 | 330 | 335 | |

gac cgl ggg gll cgc cgl cal ltc cal gal gac atc acf gtl gig gig 1417
 Asp Arg Gly Val Arg Arg His Phe His Asp Asp Ile Thr Val Val Val
 340 345 350
 glg tll cll gac lca cac cll gig agc cgg gcl agc lca glc cgg ggc 1465
 Val Phe Leu Asp Ser His Leu Val Ser Arg Ala Ser Ser Val Arg Gly
 355 360 365
 cca aac atc tcc glg aaa ggt ggc ggc atc agt clg ccl ccc aat gcl 1513
 Pro Asn Ile Ser Val Lys Gly Gly Gly Ile Ser Leu Pro Pro Asn Ala
 370 375 380
 cll gca ccl tgl gcc aca cca acg gag cca glc cca aat lgatctgcl 1562
 Leu Ala Pro Cys Ala Thr Pro Thr Glu Pro Val Pro Asn
 385 390 395
 glctcttcta atgtatltc ccgttagtcc tglgttacta ttgttatgtg aatacaggta 1622
 gcttcttaac ggataacagc ggcccttgaa ttctttaaic calactgttaa ctittaacgc 1682
 gagactatla ctlggcatag tticaatgcc caaggatcac atagactggg acaagccatc 1742
 ttggcggltga caatcalcat agttaagitt tclgggcata tctttcaaaa aaaaaaaaaa 1802
 aaaa 1806

<210> 34
 <211> 397
 <212> PRT
 <213> Avicennia marina

<400> 34
 Met Leu Ser Gly Leu Met Asn Phe Leu Trp Ala Cys Phe Arg Pro Arg
 1 5 10 15
 Ala Asp Arg Ser Val His Thr Gly Ser Asp Ala Gly Gly Arg Gln Asp
 20 25 30
 Gly Leu Leu Trp Tyr Lys Asp Leu Gly Gln His Ile Asn Gly Glu Phe
 35 40 45
 Ser Met Ala Val Val Gln Ala Asn Asn Leu Leu Glu Asp Gln Ser Gln
 50 55 60
 Leu Glu Ser Gly Cys Leu Ser Leu Ser Asp Ser Gly Gln Tyr Gly Thr

| | | | | | | |
|---|--|-----|--|-----|--|-----|
| 65 | | 70 | | 75 | | 80 |
| Phe Val Gly Ile Tyr Asp Gly His Gly Gly Pro Glu Thr Ser Arg Phe | | | | | | |
| | | 85 | | 90 | | 95 |
| Ile Asn Asp His Leu Phe Gln His Ile Lys Arg Phe Thr Ala Glu His | | | | | | |
| | | 100 | | 105 | | 110 |
| Gln Ser Met Ser Ala Glu Val Ile His Lys Ala Ile Gln Ala Thr Glu | | | | | | |
| | | 115 | | 120 | | 125 |
| Glu Gly Phe Phe Ser Val Val Ser Arg Gln Trp Ser Met Gln Pro Gln | | | | | | |
| | | 130 | | 135 | | 140 |
| Ile Ala Ala Val Gly Ser Cys Cys Leu Val Gly Val Ile Cys Ser Gly | | | | | | |
| 145 | | 150 | | 155 | | 160 |
| Thr Leu Tyr Val Ser Asn Leu Gly Asp Ser Arg Ala Val Leu Gly Thr | | | | | | |
| | | 165 | | 170 | | 175 |
| Leu Ser Lys Ala Thr Gly Glu Val Gln Ala Thr Gln Leu Ser Thr Glu | | | | | | |
| | | 180 | | 185 | | 190 |
| His Asn Ala Ser Phe Glu Ser Val Arg Arg Glu Leu Gln Ser Leu His | | | | | | |
| | | 195 | | 200 | | 205 |
| Pro Asp Asp Ser Gln Ile Val Val Leu Lys His Asn Val Trp Arg Val | | | | | | |
| | | 210 | | 215 | | 220 |
| Lys Gly Leu Ile Gln Ile Ser Arg Ser Ile Gly Asp Val Tyr Leu Lys | | | | | | |
| 225 | | 230 | | 235 | | 240 |
| Lys Ala Glu Phe Asn Arg Glu Pro Leu Tyr Gln Lys Phe Arg Leu Arg | | | | | | |
| | | 245 | | 250 | | 255 |
| Glu Ala Phe Lys Arg Pro Ile Leu Ser Ser Glu Pro Glu Thr Thr Val | | | | | | |
| | | 260 | | 265 | | 270 |
| His Gln Leu Leu Pro His Asp Gln Phe Ile Ile Phe Ala Ser Asp Gly | | | | | | |
| | | 275 | | 280 | | 285 |
| Leu Trp Glu His Leu Ser Asn Gln Glu Ala Val Asp Leu Val Gln Lys | | | | | | |
| | | 290 | | 295 | | 300 |
| His Pro His Asn Gly Ile Ala Arg Arg Leu Val Lys Ala Ala Leu Gln | | | | | | |
| 305 | | 310 | | 315 | | 320 |

| 65 | 70 | 75 | 80 | |
|--|-----|-----|-----|-----|
| gca acg ttt ttg aaa ggc gct gtt gtt tat gaa gla aag tat tgt gct | | | | 288 |
| Ala Thr Phe Leu Lys Gly Ala Val Val Tyr Glu Val Lys Tyr Cys Ala | | | | |
| | 85 | 90 | 95 | |
| tat tca caa gca aca aga cgc atc agc tat gga gaa ggc gag tca ttt | | | | 336 |
| Tyr Ser Gln Ala Thr Arg Arg Ile Ser Tyr Gly Glu Gly Glu Ser Phe | | | | |
| | 100 | 105 | 110 | |
| act gct ggt acc ttt cag ttg gtc act gcc tca gac caa acc ggt att | | | | 384 |
| Thr Ala Gly Thr Phe Gln Leu Val Thr Ala Ser Asp Gln Thr Gly Ile | | | | |
| | 115 | 120 | 125 | |
| ggt iac tac aca tct agc agc ttg tct gat ggt gla tgacttatcg | | | | 430 |
| Gly Tyr Tyr Thr Ser Ser Ser Leu Ser Asp Gly Val | | | | |
| | 130 | 135 | 140 | |
| gaactcccca gtttctgcat tctgaaaggt gctttttgat ttccgaataa ttcttcaaat | | | | 490 |
| ccacatgta gaagatccat tctttaggtc agatgtctat ctactgctcc cagccttgag | | | | 550 |
| ctgctcatgg gtattgggtc ccttctatit ttaggtlagag tctttgagta agccttgcca | | | | 610 |
| catcaaggcc tcagattatt gaatgtacaa cagaataggt tglagcttca ttggctagta | | | | 670 |
| cagtgaccic tticatgggt ctgaaacatc aatataaagg ttlgaaiggc aaaaaaaaaa | | | | 730 |
| aaaaaaaaa aaa | | | | 743 |

<210> 36

<211> 140

<212> PRT

<213> Mesembryanthemum crystallinum

<400> 36

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Glu | Leu | Ala | Pro | Lys | Asp | Gly | Asp | Phe | Arg | Phe | Asn | Ile | Ser | Glu |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Ala | Met | Leu | Pro | Ala | Gly | Thr | Val | Asp | His | Ala | Val | Glu | Arg |
| | | | 20 | | | | | 25 | | | | | | 30 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Tyr | Gln | Glu | Met | Pro | Arg | Trp | Glu | Glu | Thr | Val | Leu | Gly | Ser | Arg |
| | | | 35 | | | | 40 | | | | | | 45 | | |

Ser Arg Tyr Glu His Val Ile Gln Ala Leu Ala Asp Lys Tyr Pro Ser
 50 55 60
 Glu Asn Leu Leu Leu Val Thr His Gly Glu Gly Val Gly Thr Ser Val
 65 70 75 80
 Ala Thr Phe Leu Lys Gly Ala Val Val Tyr Glu Val Lys Tyr Cys Ala
 85 90 95
 Tyr Ser Gln Ala Thr Arg Arg Ile Ser Tyr Gly Glu Gly Glu Ser Phe
 100 105 110
 Thr Ala Gly Thr Phe Gln Leu Val Thr Ala Ser Asp Gln Thr Gly Ile
 115 120 125
 Gly Tyr Tyr Thr Ser Ser Ser Leu Ser Asp Gly Val
 130 135 140

<210> 37
 <211> 348
 <212> DNA
 <213> Sueada japonica

<220>
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 <222> (1)..(246)

<400> 37
 atc att gct ccc cta gct att ggt ttg atc gtt ggt gcc aac atc tta 48
 Ile Ile Ala Pro Leu Ala Ile Gly Leu Ile Val Gly Ala Asn Ile Leu
 1 5 10 15
 gcc gga ggt gca ttt gat ggt gcc tca atg aac cct gcc gtc tct ttt 96
 Ala Gly Gly Ala Phe Asp Gly Ala Ser Met Asn Pro Ala Val Ser Phe
 20 25 30
 ggc ccc gcc gtg gtt agc tgg agc tgg gcc aac cac tgg gtc tac tgg 144
 Gly Pro Ala Val Val Ser Trp Ser Trp Ala Asn His Trp Val Tyr Trp
 35 40 45
 gca ggc cca ctc att ggt ggt gga ctt gct ggt ctc gtt tat gag ttt 192
 Ala Gly Pro Leu Ile Gly Gly Gly Leu Ala Gly Leu Val Tyr Glu Phe
 50 55 60

atc ttt att ggt cac caa gag cca gct lcc gct gac tac cag aga ctc 240
 lle phe lle gly his gln glu pro ala ser ala asp tyr gln arg leu
 65 70 75 80

lct gct taagaatttt aattctttgc cctagggaaa aatgtttcat gcatgtattt 296
 Ser Ala

tggtaatttg ttgggtctaa aattttatga agggaaaaaa aaaaaaaaaa aa 348

<210> 38
 <211> 82
 <212> PRT
 <213> Sueada japonica

<400> 38
 lle lle ala pro leu ala lle gly leu lle val gly ala asn lle leu
 1 5 10 15

ala gly gly ala phe asp gly ala ser met asn pro ala val ser phe
 20 25 30

gly pro ala val val ser trp ser trp ala asn his trp val tyr trp
 35 40 45

ala gly pro leu lle gly gly gly leu ala gly leu val tyr glu phe
 50 55 60

lle phe lle gly his gln glu pro ala ser ala asp tyr gln arg leu
 65 70 75 80

Ser Ala

<210> 39
 <211> 1602
 <212> DNA
 <213> Sueada japonica

<220>
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 <222> (1).. (1419)

<400> 39

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|---|-----|
| cac acc gtt gat tta acc att gaa gct atg atg ctc gat tct caa gct | 48 |
| His Thr Val Asp Leu Thr Ile Glu Ala Met Met Leu Asp Ser Gln Ala | |
| 1 5 10 15 | |
| ict gat ctt gac aaa gaa gaa cgt cct gag att ctt tca atg ctt ccg | 96 |
| Ser Asp Leu Asp Lys Glu Glu Arg Pro Glu Ile Leu Ser Met Leu Pro | |
| 20 25 30 | |
| ccf ctt gaa gga aaa tgc ctc ttg gaa ctt ggg gct ggt att ggt cgt | 144 |
| Pro Leu Glu Gly Lys Cys Leu Leu Glu Leu Gly Ala Gly Ile Gly Arg | |
| 35 40 45 | |
| ttt act ggt gaa ttg gct gag aaa gct ggc cag gtt att gct ctg gat | 192 |
| Phe Thr Gly Glu Leu Ala Glu Lys Ala Gly Gln Val Ile Ala Leu Asp | |
| 50 55 60 | |
| ttc att gag agt gct atc aag aag aat gaa gla atc aat ggg cac tac | 240 |
| Phe Ile Glu Ser Ala Ile Lys Lys Asn Glu Val Ile Asn Gly His Tyr | |
| 65 70 75 80 | |
| aaa aat gtc aag ttt atg tgt gct gat gtg act tct ccc act ctc agt | 288 |
| Lys Asn Val Lys Phe Met Cys Ala Asp Val Thr Ser Pro Thr Leu Ser | |
| 85 90 95 | |
| ttc cca cca cat tca ttg gat gtg ala ttc tcc aat tgg tta ctc atg | 336 |
| Phe Pro Pro His Ser Leu Asp Val Ile Phe Ser Asn Trp Leu Leu Met | |
| 100 105 110 | |
| tat ctt tct gat gaa gag gtg gaa aat ttg gtt gaa aga atg ttg aaa | 384 |
| Tyr Leu Ser Asp Glu Glu Val Glu Asn Leu Val Glu Arg Met Leu Lys | |
| 115 120 125 | |
| tgg ttg aag cca ggg ggt tac att ttc ttc aga gaa tct tgt ttc cat | 432 |
| Trp Leu Lys Pro Gly Gly Tyr Ile Phe Phe Arg Glu Ser Cys Phe His | |
| 130 135 140 | |
| caa tct ggg gat cac aaa cgc aaa agc aat ccc acc cac tac cgt gaa | 480 |
| Gln Ser Gly Asp His Lys Arg Lys Ser Asn Pro Thr His Tyr Arg Glu | |
| 145 150 155 160 | |
| ccf agg ttc tac act aag gcc ttc aaa gag tgt cat ttg caa gat gga | 528 |
| Pro Arg Phe Tyr Thr Lys Ala Phe Lys Glu Cys His Leu Gln Asp Gly | |
| 165 170 175 | |
| tct gga aac tct tat gag ctc tcc cta ctt agc tgc aaa tgt att gga | 576 |
| Ser Gly Asn Ser Tyr Glu Leu Ser Leu Leu Ser Cys Lys Cys Ile Gly | |

| 180 | 185 | 190 | |
|---|-----|-----|------|
| gct tat gtc aga aac aag aaa aac cag aac cag att agt tgg ttg tgg | | | 624 |
| Ala Tyr Val Arg Asn Lys Lys Asn Gln Asn Gln Ile Ser Trp Leu Trp | | | |
| 195 | 200 | 205 | |
| caa aaa gtt gat tct aag gat gat aag ggg ttc cag cga ttt ctg gat | | | 672 |
| Gln Lys Val Asp Ser Lys Asp Asp Lys Gly Phe Gln Arg Phe Leu Asp | | | |
| 210 | 215 | 220 | |
| act agc cag tac aag tgt aat agc att ctg cga tat gag cgt gta ttt | | | 720 |
| Thr Ser Gln Tyr Lys Cys Asn Ser Ile Leu Arg Tyr Glu Arg Val Phe | | | |
| 225 | 230 | 235 | 240 |
| ggc cct ggt tat gtt agc act gga gga tat gaa acc acc aaa gag ttt | | | 768 |
| Gly Pro Gly Tyr Val Ser Thr Gly Gly Tyr Glu Thr Thr Lys Glu Phe | | | |
| 245 | 250 | 255 | |
| gtg tca atg ctg gac ttg aag cct ggc cag aag gtc ctg gat gtt ggt | | | 816 |
| Val Ser Met Leu Asp Leu Lys Pro Gly Gln Lys Val Leu Asp Val Gly | | | |
| 260 | 265 | 270 | |
| tgt gga att ggt gga ggt gac ttt tac atg gcg gag acc ttt gat gtt | | | 864 |
| Cys Gly Ile Gly Gly Gly Asp Phe Tyr Met Ala Glu Thr Phe Asp Val | | | |
| 275 | 280 | 285 | |
| gag gtt gtt gga ttt gat ctg tcc gtt aat atg att tcc ttt gcc ctt | | | 912 |
| Glu Val Val Gly Phe Asp Leu Ser Val Asn Met Ile Ser Phe Ala Leu | | | |
| 290 | 295 | 300 | |
| gag cgt tct att ggg ctt aaa tgt gct gtt gag ttt gag gla gca gat | | | 960 |
| Glu Arg Ser Ile Gly Leu Lys Cys Ala Val Glu Phe Glu Val Ala Asp | | | |
| 305 | 310 | 315 | 320 |
| tgc acc aag ata aac tac cct gat aac tct ttt gat gtc atc tat agc | | | 1008 |
| Cys Thr Lys Ile Asn Tyr Pro Asp Asn Ser Phe Asp Val Ile Tyr Ser | | | |
| 325 | 330 | 335 | |
| cgt gac acc att ctg cat att cag gac aag cct gcg ttg ttt aga tcc | | | 1056 |
| Arg Asp Thr Ile Leu His Ile Gln Asp Lys Pro Ala Leu Phe Arg Ser | | | |
| 340 | 345 | 350 | |
| ttc tac aaa tgg ttg aag cca gga ggt aaa gtt cta atc agt gat tac | | | 1104 |
| Phe Tyr Lys Trp Leu Lys Pro Gly Gly Lys Val Leu Ile Ser Asp Tyr | | | |
| 355 | 360 | 365 | |

tgc aag aaa gct ggt cca ccc tca cct gaa ttc gcc gct tac att aag 1152
 Cys Lys Lys Ala Gly Pro Pro Ser Pro Glu Phe Ala Ala Tyr Ile Lys
 370 375 380

cag agg gga tat gat ctc cat gat gla aag gaa tat ggg cag atg ctt 1200
 Gln Arg Gly Tyr Asp Leu His Asp Val Lys Glu Tyr Gly Gln Met Leu
 385 390 395 400

aaa gat gct gga ttt gtt gat gtt ctt gcc gag gat aga act gag cag 1248
 Lys Asp Ala Gly Phe Val Asp Val Leu Ala Glu Asp Arg Thr Glu Gln
 405 410 415

ttc att cga gtt cta cgg aag gaa cta gag act gtt gag aag gaa aag 1296
 Phe Ile Arg Val Leu Arg Lys Glu Leu Glu Thr Val Glu Lys Glu Lys
 420 425 430

gat gtg ttc att agt gat ttc tct gag gag gat tac aat gac att gtt 1344
 Asp Val Phe Ile Ser Asp Phe Ser Glu Glu Asp Tyr Asn Asp Ile Val
 435 440 445

gga ggt igg aat gat aag ttg cgg agg act gcc aag ggt gag caa cga 1392
 Gly Gly Trp Asn Asp Lys Leu Arg Arg Thr Ala Lys Gly Glu Gln Arg
 450 455 460

tgg ggt ctg ttc gtt gcc aag aag aag tgaagaatca gtggccgcac 1439
 Trp Gly Leu Phe Val Ala Lys Lys Lys
 465 470

tggcactgtc gatctcctag taattaatctt caatgttttc atgtaaatgta ctctctacatg 1499

taaaattgcc aataagttgc atttcgcaga ctgtaagaatg attaatacata ttttaatcttt 1559

taattaatca tggatttaatg caaaaaaaaaa aaaaaaaaaa aaa 1602

<210> 40
 <211> 473
 <212> PRT
 <213> Sueada japonica

<400> 40
 His Thr Val Asp Leu Thr Ile Glu Ala Met Met Leu Asp Ser Gln Ala
 1 5 10 15
 Ser Asp Leu Asp Lys Glu Glu Arg Pro Glu Ile Leu Ser Met Leu Pro
 20 25 30

Cys Gly Ile Gly Gly Gly Asp Phe Tyr Met Ala Glu Thr Phe Asp Val
 275 280 285
 Glu Val Val Gly Phe Asp Leu Ser Val Asn Met Ile Ser Phe Ala Leu
 290 295 300
 Glu Arg Ser Ile Gly Leu Lys Cys Ala Val Glu Phe Glu Val Ala Asp
 305 310 315 320
 Cys Thr Lys Ile Asn Tyr Pro Asp Asn Ser Phe Asp Val Ile Tyr Ser
 325 330 335
 Arg Asp Thr Ile Leu His Ile Gln Asp Lys Pro Ala Leu Phe Arg Ser
 340 345 350
 Phe Tyr Lys Trp Leu Lys Pro Gly Gly Lys Val Leu Ile Ser Asp Tyr
 355 360 365
 Cys Lys Lys Ala Gly Pro Pro Ser Pro Glu Phe Ala Ala Tyr Ile Lys
 370 375 380
 Gln Arg Gly Tyr Asp Leu His Asp Val Lys Glu Tyr Gly Gln Met Leu
 385 390 395 400
 Lys Asp Ala Gly Phe Val Asp Val Leu Ala Glu Asp Arg Thr Glu Gln
 405 410 415
 Phe Ile Arg Val Leu Arg Lys Glu Leu Glu Thr Val Glu Lys Glu Lys
 420 425 430
 Asp Val Phe Ile Ser Asp Phe Ser Glu Glu Asp Tyr Asn Asp Ile Val
 435 440 445
 Gly Gly Trp Asn Asp Lys Leu Arg Arg Thr Ala Lys Gly Glu Gln Arg
 450 455 460
 Trp Gly Leu Phe Val Ala Lys Lys Lys
 465 470

<210> 41
 <211> 1251
 <212> DNA
 <213> Salsola komarovii

<220>

<221> CDS

<222> (1)..(933)

<400> 41

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| cag | cca | ttt | ggc | aca | att | aal | gga | tca | ctt | cgt | gtt | act | gta | caa | ggt | 48 |
| Gln | Pro | Phe | Gly | Thr | Ile | Asn | Gly | Ser | Leu | Arg | Val | Thr | Val | Gln | Gly | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| gag | gtc | att | gaa | caa | tct | ttt | gga | gag | gag | cac | tig | tgt | ttt | aga | aca | 96 |
| Glu | Val | Ile | Glu | Gln | Ser | Phe | Gly | Glu | Glu | His | Leu | Cys | Phe | Arg | Thr | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tta | cag | cgg | tac | aca | gct | gcc | aca | ctt | gag | cat | gga | atg | cat | cca | cca | 144 |
| Leu | Gln | Arg | Tyr | Thr | Ala | Ala | Thr | Leu | Glu | His | Gly | Met | His | Pro | Pro | |
| | | | 35 | | | | 40 | | | | | 45 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atc | tct | ccf | aaa | cca | gaa | tgg | cgt | gca | ctt | tig | gac | gag | atg | gct | gtt | 192 |
| Ile | Ser | Pro | Lys | Pro | Glu | Trp | Arg | Ala | Leu | Leu | Asp | Glu | Met | Ala | Val | |
| | | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtt | gcc | acc | aag | gaa | tac | cgc | tct | gtt | gtt | ttt | cat | gag | ccf | cgc | ttt | 240 |
| Val | Ala | Thr | Lys | Glu | Tyr | Arg | Ser | Val | Val | Phe | His | Glu | Pro | Arg | Phe | |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtc | gag | tac | ttc | cgc | agf | gct | aca | cca | gag | aca | gag | tat | ggg | cgt | atg | 288 |
| Val | Glu | Tyr | Phe | Arg | Ser | Ala | Thr | Pro | Glu | Thr | Glu | Tyr | Gly | Arg | Met | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| aat | att | gga | agc | cgt | ccf | gca | aag | aga | aag | cca | gga | gga | gga | att | gaa | 336 |
| Asn | Ile | Gly | Ser | Arg | Pro | Ala | Lys | Arg | Lys | Pro | Gly | Gly | Gly | Ile | Glu | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| act | ctg | cgt | gca | att | ccf | tgg | ata | ttt | tcg | tgg | aca | caa | acc | agg | ttt | 384 |
| Thr | Leu | Arg | Ala | Ile | Pro | Trp | Ile | Phe | Ser | Trp | Thr | Gln | Thr | Arg | Phe | |
| | | | 115 | | | | 120 | | | | | 125 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cat | tta | ccf | gtg | tgg | ctt | ggg | gtt | gga | gca | gct | ttt | aag | cat | gcc | ctt | 432 |
| His | Leu | Pro | Val | Trp | Leu | Gly | Val | Gly | Ala | Ala | Phe | Lys | His | Ala | Leu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gac | aag | gac | att | aag | aal | ctt | tcg | ata | cfc | aag | gcc | aig | lat | aal | gag | 480 |
| Asp | Lys | Asp | Ile | Lys | Asn | Leu | Ser | Ile | Leu | Lys | Ala | Met | Tyr | Asn | Glu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tgg | ccg | tfc | tfc | aga | gtg | act | att | gal | cfc | tta | gaa | aig | gtt | tfc | act | 528 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | | | | | | | |
|------------|-------------|-------------|-------------|-------------|------------|------|------------|----------|------------|-----|-----|-----|-----|-----|-----|-----|--|
| Trp | Pro | Phe | Phe | Arg | Val | Thr | Ile | Asp | Leu | Leu | Glu | Met | Val | Phe | Thr | | |
| | | | | 165 | | | | 170 | | | | | 175 | | | | |
| aaa | gga | gac | ccf | gga | att | gct | gct | tta | tat | gac | aag | ctt | cig | gig | gca | 576 | |
| Lys | Gly | Asp | Pro | Gly | Ile | Ala | Ala | Leu | Tyr | Asp | Lys | Leu | Leu | Val | Ala | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| gag | gat | tig | aag | ccc | ttt | ggg | gaa | aag | tig | agg | aaa | agt | ttc | gaa | gat | 624 | |
| Glu | Asp | Leu | Lys | Pro | Phe | Gly | Glu | Lys | Leu | Arg | Lys | Ser | Phe | Glu | Asp | | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| acc | aaa | cic | ctt | cic | ctt | aag | gtt | gct | ggg | cac | aag | gag | tta | cig | gaa | 672 | |
| Thr | Lys | Leu | Leu | Leu | Leu | Lys | Val | Ala | Gly | His | Lys | Glu | Leu | Leu | Glu | | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| gga | gat | ccf | tac | tig | aaa | cag | aga | cic | cga | ctt | cgt | gat | ccf | tac | att | 720 | |
| Gly | Asp | Pro | Tyr | Leu | Lys | Gln | Arg | Leu | Arg | Leu | Arg | Asp | Pro | Tyr | Ile | | |
| | | | 225 | | | 230 | | | | 235 | | | | | 240 | | |
| aca | acc | ctt | aat | gtt | ttc | caa | gca | tat | act | cig | aag | cgg | atc | cgt | gat | 768 | |
| Thr | Thr | Leu | Asn | Val | Phe | Gln | Ala | Tyr | Thr | Leu | Lys | Arg | Ile | Arg | Asp | | |
| | | | | 245 | | | | | | 250 | | | | | 255 | | |
| ccc | aat | ttc | cat | gta | gct | gaa | ggg | cca | cac | tta | tcc | aag | gaa | gta | tig | 816 | |
| Pro | Asn | Phe | His | Val | Ala | Glu | Gly | Pro | His | Leu | Ser | Lys | Glu | Val | Leu | | |
| | | | 260 | | | | | 265 | | | | | | 270 | | | |
| gaa | tca | aac | aat | gct | gag | ctt | gig | aag | cic | aat | ccf | act | agt | gag | tat | 864 | |
| Glu | Ser | Asn | Asn | Ala | Glu | Leu | Val | Lys | Leu | Asn | Pro | Thr | Ser | Glu | Tyr | | |
| | | | 275 | | | | | 280 | | | | | | 285 | | | |
| ccf | ccf | ggc | ctt | gag | gac | acc | ctt | atc | tig | acc | atg | aag | ggt | att | gct | 912 | |
| Pro | Pro | Gly | Leu | Glu | Asp | Thr | Leu | Ile | Leu | Thr | Met | Lys | Gly | Ile | Ala | | |
| | | | 290 | | | | | 295 | | | | | | 300 | | | |
| gct | ggc | atg | cag | aac | acc | ggt | taactgacac | gigtgacg | tcctatgcaa | | | | | | | 963 | |
| Ala | Gly | Met | Gln | Asn | Thr | Gly | | | | | | | | | | | |
| | | | 305 | | | | 310 | | | | | | | | | | |
| ctatcccca | actccctctg | gtttggggat | ccgggcicgg | agatagccat | cgttggigat | 1023 | | | | | | | | | | | |
| gigctgialg | agcacctaai | tgtatcaaaa | gtctgtatit | caagictait | gtatitgtat | 1083 | | | | | | | | | | | |
| tttgttcttc | tgtatgtitit | tgtatitcti | actatggit | gggttgtgtc | acttgtgact | 1143 | | | | | | | | | | | |
| aatacccgac | tgtgtataaa | atggitgtitg | tactgtatgaa | cagtittgtit | tcitctacgt | 1203 | | | | | | | | | | | |

gagttatatt gatgatttta tcttttattt aaaaaaaaaa aaaaaaaaaa

1251

<210> 42

<211> 311

<212> PRT

<213> Salsola komarovii

<400> 42

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1 5 10 15

Glu Val Ile Glu Gln Ser Phe Gly Glu Glu His Leu Cys Phe Arg Thr
20 25 30

Leu Gln Arg Tyr Thr Ala Ala Thr Leu Glu His Gly Met His Pro Pro
35 40 45

Ile Ser Pro Lys Pro Glu Trp Arg Ala Leu Leu Asp Glu Met Ala Val
50 55 60

Val Ala Thr Lys Glu Tyr Arg Ser Val Val Phe His Glu Pro Arg Phe
65 70 75 80

Val Glu Tyr Phe Arg Ser Ala Thr Pro Glu Thr Glu Tyr Gly Arg Met
85 90 95

Asn Ile Gly Ser Arg Pro Ala Lys Arg Lys Pro Gly Gly Gly Ile Glu
100 105 110

Thr Leu Arg Ala Ile Pro Trp Ile Phe Ser Trp Thr Gln Thr Arg Phe
115 120 125

His Leu Pro Val Trp Leu Gly Val Gly Ala Ala Phe Lys His Ala Leu
130 135 140

Asp Lys Asp Ile Lys Asn Leu Ser Ile Leu Lys Ala Met Tyr Asn Glu
145 150 155 160

Trp Pro Phe Phe Arg Val Thr Ile Asp Leu Leu Glu Met Val Phe Thr
165 170 175

Lys Gly Asp Pro Gly Ile Ala Ala Leu Tyr Asp Lys Leu Leu Val Ala
180 185 190

Glu Asp Leu Lys Pro Phe Gly Glu Lys Leu Arg Lys Ser Phe Glu Asp
 195 200 205
 Thr Lys Leu Leu Leu Leu Lys Val Ala Gly His Lys Glu Leu Leu Glu
 210 215 220
 Gly Asp Pro Tyr Leu Lys Gln Arg Leu Arg Leu Arg Asp Pro Tyr Ile
 225 230 235 240
 Thr Thr Leu Asn Val Phe Gln Ala Tyr Thr Leu Lys Arg Ile Arg Asp
 245 250 255
 Pro Asn Phe His Val Ala Glu Gly Pro His Leu Ser Lys Glu Val Leu
 260 265 270
 Glu Ser Asn Asn Ala Glu Leu Val Lys Leu Asn Pro Thr Ser Glu Tyr
 275 280 285
 Pro Pro Gly Leu Glu Asp Thr Leu Ile Leu Thr Met Lys Gly Ile Ala
 290 295 300
 Ala Gly Met Gln Asn Thr Gly
 305 310

<210> 43
 <211> 637
 <212> DNA
 <213> Avicennia marina

<220>
 <221> CDS
 <222> (1).. (339)

<400> 43
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 Gln Tyr Leu Val Asn Glu Val Lys Lys Thr Val Gln Gly Arg Ala Gln
 1 5 10 15
 ctt ggt gtg gaa gca ttt gct gat gcg ctt ctt gtg gtt cca aag acg 96
 Leu Gly Val Glu Ala Phe Ala Asp Ala Leu Leu Val Val Pro Lys Thr
 20 25 30
 ctt gcc gag aac tct ggc ctt gat acc cag gat ttg att att gaa ctt 144
 Leu Ala Glu Asn Ser Gly Leu Asp Thr Gln Asp Leu Ile Ile Glu Leu

| | | | |
|--|-----|-----|----|
| 35 | 40 | 45 | |
| acg gga gaa tat gaa aaa ggg aat gtg gla gga ctt aal cia cac aca | 192 | | |
| Thr Gly Glu Tyr Glu Lys Gly Asn Val Val Gly Leu Asn Leu His Thr | | | |
| 50 | 55 | 60 | |
| gga gaa cct ata gal cct caa atg gag ggt atc ttt gac aat tat tcc | 240 | | |
| Gly Glu Pro Ile Asp Pro Gln Met Glu Gly Ile Phe Asp Asn Tyr Ser | | | |
| 65 | 70 | 75 | 80 |
| gtg aag cgt cag atc ata aac tca ggc ccc gtt att gca tct cag ctg | 288 | | |
| Val Lys Arg Gln Ile Ile Asn Ser Gly Pro Val Ile Ala Ser Gln Leu | | | |
| 85 | 90 | 95 | |
| cia ctt gtc gac gag gtt att cgt gct ggt cgt aac atg cgt aaa ccg | 336 | | |
| Leu Leu Val Asp Glu Val Ile Arg Ala Gly Arg Asn Met Arg Lys Pro | | | |
| 100 | 105 | 110 | |
| aat tagctttcac cctagttttt gtgatgttgg tgaagatggt aattttattt | 389 | | |
| Asn | | | |
| aggtaggggtc atggttccct ttttttagcc taagcactat gtattcatlg ccacttgaga | 449 | | |
| tttgaatttt gatcaltcagg cggttgaact ttctgcctgt tacaatttc accagaaatt | 509 | | |
| attcgaccat gggtaigcat ctacttgtgt tglaccigac ttggctaaagt tatttgaaga | 569 | | |
| tacactctgt gctcagcaaa gaatttgaaa aaaaggaatt gatltcalca aaaaaaaaaa | 629 | | |
| aaaaaaaa | 637 | | |

<210> 44

<211> 113

<212> PRT

<213> Avicennia marina

<400> 44

| |
|---|
| Gln Tyr Leu Val Asn Glu Val Lys Lys Thr Val Gln Gly Arg Ala Gln |
| 1 5 10 15 |

| |
|---|
| Leu Gly Val Glu Ala Phe Ala Asp Ala Leu Leu Val Val Pro Lys Thr |
| 20 25 30 |

| |
|---|
| Leu Ala Glu Asn Ser Gly Leu Asp Thr Gln Asp Leu Ile Ile Glu Leu |
| 35 40 45 |

Thr Gly Glu Tyr Glu Lys Gly Asn Val Val Gly Leu Asn Leu His Thr
50 55 60

Gly Glu Pro Ile Asp Pro Gln Met Glu Gly Ile Phe Asp Asn Tyr Ser
65 70 75 80

Val Lys Arg Gln Ile Ile Asn Ser Gly Pro Val Ile Ala Ser Gln Leu
85 90 95

Leu Leu Val Asp Glu Val Ile Arg Ala Gly Arg Asn Met Arg Lys Pro
100 105 110

Asn

<210> 45

<211> 741

<212> DNA

<213> *Avicennia marina*

<220>

<221> CDS

<222> (3)..(293)

<400> 45

aa gag atc aat tgt ctt gaa tgg gag aac ttt gct ttc cat ccc agc 47
Glu Ile Asn Cys Leu Glu Trp Glu Asn Phe Ala Phe His Pro Ser
1 5 10 15

cca ctc att gtt ctt gtt ttt gaa aga tac aac agg gca agt gat aac 95
Pro Leu Ile Val Leu Val Phe Glu Arg Tyr Asn Arg Ala Ser Asp Asn
20 25 30

tgg aaa gct ttg aag gag ttg gaa aag gcg gca gaa gtt tac tgg aag 143
Trp Lys Ala Leu Lys Glu Leu Glu Lys Ala Ala Glu Val Tyr Trp Lys
35 40 45

gca aaa gat cga ctc cct cct cgg acg gtc aag ata gat ata aac atc 191
Ala Lys Asp Arg Leu Pro Pro Arg Thr Val Lys Ile Asp Ile Asn Ile
50 55 60

gaa agg gat tta gca tat gca ctc aag gtt aaa gaa tgc ccg cag ata 239
Glu Arg Asp Leu Ala Tyr Ala Leu Lys Val Lys Glu Cys Pro Gln Ile

| 65 | 70 | 75 | |
|---|----|----|-----|
| cig ttc tta cgc gga aac agg ata tta tac aga gag aaa ggt agc cca | | | 287 |
| Leu Phe Leu Arg Gly Asn Arg Ile Leu Tyr Arg Glu Lys Gly Ser Pro | | | |
| 80 | 85 | 90 | 95 |
| ttt ctc tgataatgca tglacalcag atcttccaat ctcaccaga accaatlgag | | | 343 |
| Phe Leu | | | |
| tttaccatca tticcagaaa ttagatcaic ggaigaaitg gticagatga tgcgcattt | | | 403 |
| ctattacaat gcaaaaaagc cticgigcat cgaigalgca gcttctctt caccacatca | | | 463 |
| ctgaaggiga ggttigicaaa tggaaicccag calcagtcac tagggaggac tgaagctgta | | | 523 |
| cggaggggaag tggttttaaai tcagatigga tcttgaagt gggcagtggt gatigaaacg | | | 583 |
| ccaaaagtlt ctaggaata acctgttgg gatttgcag tgaactgtag taacttctc | | | 643 |
| gcatgtaaaa ctagacttcc atcaatcaac caccaacctt ttatgtata tgaacctat | | | 703 |
| gaggttgaaa ttctagtta aaaaaaaaaa aaaaaaaaaa | | | 741 |

<210> 46

<211> 97

<212> PRT

<213> Avicennia marina

<400> 46

| |
|---|
| Glu Ile Asn Cys Leu Glu Trp Glu Asn Phe Ala Phe His Pro Ser Pro |
| 1 5 10 15 |

| |
|---|
| Leu Ile Val Leu Val Phe Glu Arg Tyr Asn Arg Ala Ser Asp Asn Trp |
| 20 25 30 |

| |
|---|
| Lys Ala Leu Lys Glu Leu Glu Lys Ala Ala Glu Val Tyr Trp Lys Ala |
| 35 40 45 |

| |
|---|
| Lys Asp Arg Leu Pro Pro Arg Thr Val Lys Ile Asp Ile Asn Ile Glu |
| 50 55 60 |

| |
|---|
| Arg Asp Leu Ala Tyr Ala Leu Lys Val Lys Glu Cys Pro Gln Ile Leu |
| 65 70 75 80 |

Phe Leu Arg Gly Asn Arg Ile Leu Tyr Arg Glu Lys Gly Ser Pro Phe

85

90

95

Leu

<210> 47

<211> 983

<212> DNA

<213> *Salsola komarovii*

<220>

<221> CDS

<222> (1)..(762)

<400> 47

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | ttc | ctt | cat | cac | cac | ttt | tca | tct | tca | tct | tct | tct | ttt | ctt | ctt | 48 |
| Met | Phe | Leu | His | His | His | Phe | Ser | Ser | Ser | Ser | Ser | Ser | Ser | Phe | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| ctc | ttc | ttc | tct | cic | cta | ata | ttc | ctt | tca | tct | gct | aat | ctt | tat | cat | 96 |
| Leu | Phe | Phe | Ser | Leu | Leu | Ile | Phe | Leu | Ser | Ser | Ala | Asn | Leu | Tyr | His | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cag | aat | caa | gga | tct | tgt | agc | gac | ttt | gaa | tca | gaa | cca | tca | atg | gct | 144 |
| Gln | Asn | Gln | Gly | Ser | Cys | Ser | Asp | Phe | Glu | Ser | Glu | Pro | Ser | Met | Ala | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| act | ctt | ggt | gga | tig | cgc | gaa | tcc | cat | ggt | gct | tct | aat | gat | gct | gag | 192 |
| Thr | Leu | Gly | Gly | Leu | Arg | Glu | Ser | His | Gly | Ala | Ser | Asn | Asp | Ala | Glu | |
| | 50 | | | | | 55 | | | | 60 | | | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| att | gaa | acc | ctt | gct | cgc | ttt | gct | ggt | gat | gaa | cac | aac | aaa | aaa | gag | 240 |
| Ile | Glu | Thr | Leu | Ala | Arg | Phe | Ala | Val | Asp | Glu | His | Asn | Lys | Lys | Glu | |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| aat | gca | tig | tig | gag | ttt | gca | agg | gtt | gla | aag | gca | aag | gaa | cag | gtg | 288 |
| Asn | Ala | Leu | Leu | Glu | Phe | Ala | Arg | Val | Val | Lys | Ala | Lys | Glu | Gln | Val | |
| | | | | 85 | | | | 90 | | | | | 95 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ggt | gcg | ggt | aca | tig | cat | cac | ttc | act | atc | gaa | gca | att | gaa | gcg | ggc | 336 |
| Val | Ala | Gly | Thr | Leu | His | His | Phe | Thr | Ile | Glu | Ala | Ile | Glu | Ala | Gly | |
| | | | 100 | | | | | 105 | | | | 110 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| aag | aag | aag | cic | tac | gaa | gcg | aag | gtg | igg | gtg | aag | cca | igg | atg | aac | 384 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | | | | | | |
|-------------|------------|-------------|-------------|-------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Lys | Lys | Leu | Tyr | Glu | Ala | Lys | Val | Trp | Val | Lys | Pro | Trp | Met | Asn | |
| | | 115 | | | | | | 120 | | | | | 125 | | | |
| ttt | aag | gag | cig | cag | gaa | ttt | aag | cat | gcl | gat | gaa | icc | ccf | ica | atc | 432 |
| Phe | Lys | Glu | Leu | Gln | Glu | Phe | Lys | His | Ala | Asp | Glu | Ser | Pro | Ser | Ile | |
| | | 130 | | | | | | 135 | | | | | 140 | | | |
| act | ccf | icc | gac | ctc | ggc | gcl | aat | aga | gaa | ggg | cat | ict | gga | gga | tgg | 480 |
| Thr | Pro | Ser | Asp | Leu | Gly | Ala | Asn | Arg | Glu | Gly | His | Ser | Gly | Gly | Trp | |
| | | 145 | | | | | | 150 | | | | | 155 | | 160 | |
| aaa | gat | glg | ccf | gtc | cat | gac | ccf | gaa | glg | caa | aat | gca | gca | aat | cat | 528 |
| Lys | Asp | Val | Pro | Val | His | Asp | Pro | Glu | Val | Gln | Asn | Ala | Ala | Asn | His | |
| | | | | | 165 | | | | | 170 | | | | | 175 | |
| gcl | ctt | aag | acc | tig | caa | caa | aga | icc | aac | icc | tta | ttt | ccf | tat | gaa | 576 |
| Ala | Leu | Lys | Thr | Leu | Gln | Gln | Arg | Ser | Asn | Ser | Leu | Phe | Pro | Tyr | Glu | |
| | | | 180 | | | | | | 185 | | | | | | 190 | |
| ctg | cag | gaa | gtt | gcl | cat | gcl | agg | gcl | gag | gtt | cig | gaa | gac | act | gcg | 624 |
| Leu | Gln | Glu | Val | Ala | His | Ala | Arg | Ala | Glu | Val | Leu | Glu | Asp | Thr | Ala | |
| | | | 195 | | | | | | 200 | | | | | | 205 | |
| aag | ttt | aac | cig | cac | ctc | aag | glg | aag | aga | gga | aac | aag | gat | gag | ttt | 672 |
| Lys | Phe | Asn | Leu | His | Leu | Lys | Val | Lys | Arg | Gly | Asn | Lys | Asp | Glu | Phe | |
| | | 210 | | | | | | 215 | | | | | | | 220 | |
| ttc | aat | glg | gag | glg | cac | aaa | aac | agc | gaa | gga | aac | tac | aac | ctt | aat | 720 |
| Phe | Asn | Val | Glu | Val | His | Lys | Asn | Ser | Glu | Gly | Asn | Tyr | Asn | Leu | Asn | |
| | | 225 | | | | | | 230 | | | | 235 | | | 240 | |
| cag | aig | ggg | aac | gtt | gag | ccc | gag | gtt | gag | aaa | agt | agt | gtt | | | 762 |
| Gln | Met | Gly | Asn | Val | Glu | Pro | Glu | Val | Glu | Lys | Ser | Ser | Val | | | |
| | | | | 245 | | | | | | 250 | | | | | | |
| tagactcggt | gaggggtgtg | taagtaactcg | ttcgtaactt | ttctgaatgtt | caggcaagta | | | | | | | | | | | 822 |
| tgtagtaagg | actagactac | tagtactagt | aagtaacagct | gacttgggttt | gagtaaaata | | | | | | | | | | | 882 |
| accitgactt | tggttgcacc | atcatacttt | gtatgtttat | ggctttgtca | atgtatgtta | | | | | | | | | | | 942 |
| agtagaagatt | gtttgttga | tttaaaaaaa | aaaaaaaaaa | a | | | | | | | | | | | | 983 |

<210> 48

<211> 254

<212> PRT

<213> Salsola komarovii

<400> 48

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Leu | His | His | His | Phe | Ser | Ser | Ser | Ser | Ser | Ser | Phe | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Phe | Phe | Ser | Leu | Leu | Ile | Phe | Leu | Ser | Ser | Ala | Asn | Leu | Tyr | His |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gln | Asn | Gln | Gly | Ser | Cys | Ser | Asp | Phe | Glu | Ser | Glu | Pro | Ser | Met | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Leu | Gly | Gly | Leu | Arg | Glu | Ser | His | Gly | Ala | Ser | Asn | Asp | Ala | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ile | Glu | Thr | Leu | Ala | Arg | Phe | Ala | Val | Asp | Glu | His | Asn | Lys | Lys | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asn | Ala | Leu | Leu | Glu | Phe | Ala | Arg | Val | Val | Lys | Ala | Lys | Glu | Gln | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Ala | Gly | Thr | Leu | His | His | Phe | Thr | Ile | Glu | Ala | Ile | Glu | Ala | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Lys | Lys | Leu | Tyr | Glu | Ala | Lys | Val | Trp | Val | Lys | Pro | Trp | Met | Asn |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Lys | Glu | Leu | Gln | Glu | Phe | Lys | His | Ala | Asp | Glu | Ser | Pro | Ser | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Pro | Ser | Asp | Leu | Gly | Ala | Asn | Arg | Glu | Gly | His | Ser | Gly | Gly | Trp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Asp | Val | Pro | Val | His | Asp | Pro | Glu | Val | Gln | Asn | Ala | Ala | Asn | His |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Leu | Lys | Thr | Leu | Gln | Gln | Arg | Ser | Asn | Ser | Leu | Phe | Pro | Tyr | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Gln | Glu | Val | Ala | His | Ala | Arg | Ala | Glu | Val | Leu | Glu | Asp | Thr | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Phe | Asn | Leu | His | Leu | Lys | Val | Lys | Arg | Gly | Asn | Lys | Asp | Glu | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |

Phe Asn Val Glu Val His Lys Asn Ser Glu Gly Asn Tyr Asn Leu Asn
 225 230 235 240

Gln Met Gly Asn Val Glu Pro Glu Val Glu Lys Ser Ser Val
 245 250

<210> 49
 <211> 543
 <212> DNA
 <213> Salsola komarovii

<220>
 <221> CDS
 <222> (3).. (389)

<400> 49
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 Asn Lys Val Asp Leu Ala Arg Asp Phe Thr Phe Ile Asp Asp Val
 1 5 10 15
 gta aag ggg tgc tta ggt tca ctg gat tct tcc ggt aag agt acc ggt 95
 Val Lys Gly Cys Leu Gly Ser Leu Asp Ser Ser Gly Lys Ser Thr Gly
 20 25 30
 agc ggc ggt aaa aaa cgt ggg ccc gct ccg tac aga atc tac aac ttg 143
 Ser Gly Gly Lys Lys Arg Gly Pro Ala Pro Tyr Arg Ile Tyr Asn Leu
 35 40 45
 ggg aac act caa ccg gtc act gta ccg aca ctt gtc ggt atc cta gag 191
 Gly Asn Thr Gln Pro Val Thr Val Pro Thr Leu Val Gly Ile Leu Glu
 50 55 60
 aag cat ctc aaa gtt aag gcc aag aag aat gtg gtt gag atg ccc gga 239
 Lys His Leu Lys Val Lys Ala Lys Lys Asn Val Val Glu Met Pro Gly
 65 70 75
 aat ggt gac gtg ccc ttc aca cat gcg aat atc tct ttg gcc cga aaa 287
 Asn Gly Asp Val Pro Phe Thr His Ala Asn Ile Ser Leu Ala Arg Lys
 80 85 90 95
 gat ttc ggg tat aaa ccc act acc gat ttg caa acc ggg ttg aaa aag 335
 Asp Phe Gly Tyr Lys Pro Thr Thr Asp Leu Gln Thr Gly Leu Lys Lys
 100 105 110

ttt gtt aga tgg tat ctg act tat tac ggc tac aac aac ggc aag cct 383
 Phe Val Arg Trp Tyr Leu Thr Tyr Tyr Gly Tyr Asn Asn Gly Lys Pro
 115 120 125

gla aat taatataaa atataagtaa tatTTTTTTT cttTTTTTTT ataaattaca 439
 Val Asn

gaattatttt ttttgggtgg tttatgaatt ttgttggata atatggggat tctTTTTTTTc 499

taaaigggaa aaataagaat ccaaggaaaa aaaaaaaaaa aaaa 543

<210> 50

<211> 129

<212> PRT

<213> Salsola komarovii

<400> 50

Asn Lys Val Asp Leu Ala Arg Asp Phe Thr Phe Ile Asp Asp Val Val
 1 5 10 15

Lys Gly Cys Leu Gly Ser Leu Asp Ser Ser Gly Lys Ser Thr Gly Ser
 20 25 30

Gly Gly Lys Lys Arg Gly Pro Ala Pro Tyr Arg Ile Tyr Asn Leu Gly
 35 40 45

Asn Thr Gln Pro Val Thr Val Pro Thr Leu Val Gly Ile Leu Glu Lys
 50 55 60

His Leu Lys Val Lys Ala Lys Lys Asn Val Val Glu Met Pro Gly Asn
 65 70 75 80

Gly Asp Val Pro Phe Thr His Ala Asn Ile Ser Leu Ala Arg Lys Asp
 85 90 95

Phe Gly Tyr Lys Pro Thr Thr Asp Leu Gln Thr Gly Leu Lys Lys Phe
 100 105 110

Val Arg Trp Tyr Leu Thr Tyr Tyr Gly Tyr Asn Asn Gly Lys Pro Val
 115 120 125

Asn

<210> 51
 <211> 1219
 <212> DNA
 <213> *Sacada japonica*

<220>
 <221> CDS
 <222> (2).. (871)

<400> 51
 c aca gga gca aac aaa gga ala gga ctt gaa cta tgc aaa caa cta gct 49
 Thr Gly Ala Asn Lys Gly Ile Gly Leu Glu Leu Cys Lys Gln Leu Ala
 1 5 10 15

gct aaa gga gtt gla gla gtt ctc act tct aga gat gga aaa aga ggc 97
 Ala Lys Gly Val Val Val Val Leu Thr Ser Arg Asp Gly Lys Arg Gly
 20 25 30

tta caa gct cat gaa aat ctc att aaa tct gga att aat cct gaa aat 145
 Leu Gln Ala His Glu Asn Leu Ile Lys Ser Gly Ile Asn Pro Glu Asn
 35 40 45

ctt cac ttt cat cag ctc gat gtt act gac atc act agt att gct gct 193
 Leu His Phe His Gln Leu Asp Val Thr Asp Ile Thr Ser Ile Ala Ala
 50 55 60

att gct ggt ttc atc aat tcc aaa ttc ggc aaa ctt gat atc ctg gtg 241
 Ile Ala Gly Phe Ile Asn Ser Lys Phe Gly Lys Leu Asp Ile Leu Val
 65 70 75 80

aac aat gct gga att att gga gat atg gtt aac ttt gat gct tta ata 289
 Asn Asn Ala Gly Ile Ile Gly Asp Met Val Asn Phe Asp Ala Leu Ile
 85 90 95

gca gca gga ttt ggc act cca aga gaa cag atc aat ctt gag gac agt 337
 Ala Ala Gly Phe Gly Thr Pro Arg Glu Gln Ile Asn Leu Glu Asp Ser
 100 105 110

ccc ggg aca gla aca cag aca tat gag ctt acg aaa gaa tgc tta caa 385
 Pro Gly Thr Val Thr Gln Thr Tyr Glu Leu Thr Lys Glu Cys Leu Gln
 115 120 125

aca aat tat tat gga gcg aaa aga acc gtt gaa gct ttg ctt ccg ctt 433
 Thr Asn Tyr Tyr Gly Ala Lys Arg Thr Val Glu Ala Leu Leu Pro Leu
 130 135 140

ctc aag tta tcc gat tct cca agg att gtc aat gtc tcc tct ttt cta 481
 Leu Lys Leu Ser Asp Ser Pro Arg Ile Val Asn Val Ser Ser Phe Leu
 145 150 155 160

gga agg ttg acg tat ata cca aat gag acg atc aga ggg gtc cta aga 529
 Gly Arg Leu Thr Tyr Ile Pro Asn Glu Thr Ile Arg Gly Val Leu Arg
 165 170 175

gat gcc gag agc ctt aca gaa gaa cga ata gat gag att ctg aat gac 577
 Asp Ala Glu Ser Leu Thr Glu Glu Arg Ile Asp Glu Ile Leu Asn Asp
 180 185 190

atg ctg agg gac ttc aaa gac tgt tca ttc aaa gag aag gga tgg cct 625
 Met Leu Arg Asp Phe Lys Asp Cys Ser Phe Lys Glu Lys Gly Trp Pro
 195 200 205

aaa aat ctg gca gcc tat ata gtt tca aag gcg gcc ttg agt gca tac 673
 Lys Asn Leu Ala Ala Tyr Ile Val Ser Lys Ala Ala Leu Ser Ala Tyr
 210 215 220

aca aga ata ctg gct aag aaa tac cca tca atc atg atc aac tgt att 721
 Thr Arg Ile Leu Ala Lys Lys Tyr Pro Ser Ile Met Ile Asn Cys Ile
 225 230 235 240

tgc cct ggc ttt gtc aaa act gac atc aat gga aac aca gga cac ttg 769
 Cys Pro Gly Phe Val Lys Thr Asp Ile Asn Gly Asn Thr Gly His Leu
 245 250 255

ccg gtt gaa gaa ggt gca gcg agt ctg gca agg tta gcg ttg atg ccc 817
 Pro Val Glu Glu Gly Ala Ala Ser Leu Ala Arg Leu Ala Leu Met Pro
 260 265 270

caa att tta cct tct gga cta ttc ttt cag aga act gaa gtt tct tgc 865
 Gln Ile Leu Pro Ser Gly Leu Phe Phe Gln Arg Thr Glu Val Ser Ser
 275 280 285

ttt gaa taaaacaatt tgcctattca aaccaacacc acatactat gaagtttcca 921
 Phe Glu
 290

ttgttaggca tctttacgaa aaaaataaga calctgcaat actgttactg gaaaaigcaa 981

tgtacttttt tcaigtatgc atggcgcagt tatttatctt gactgcaaca alaagattct 1041

gticcttcaa ggcactctaa ggaalgtga tglaccgttc tcaaacaagc agacaagtag 1101

acacgttga ttgtaatgc ttatcgcga caatcatlll ggtttgtat gttgagcatg ll6l

tttaactaat tacaagagtg taattaagat caactlllat aaaaaaaaaa aaaaaaaaa 1219

<210> 52

<211> 290

<212> PRT

<213> Sueada japonica

<400> 52

Thr Gly Ala Asn Lys Gly Ile Gly Leu Glu Leu Cys Lys Gln Leu Ala
1 5 10 15

Ala Lys Gly Val Val Val Val Leu Thr Ser Arg Asp Gly Lys Arg Gly
20 25 30

Leu Gln Ala His Glu Asn Leu Ile Lys Ser Gly Ile Asn Pro Glu Asn
35 40 45

Leu His Phe His Gln Leu Asp Val Thr Asp Ile Thr Ser Ile Ala Ala
50 55 60

Ile Ala Gly Phe Ile Asn Ser Lys Phe Gly Lys Leu Asp Ile Leu Val
65 70 75 80

Asn Asn Ala Gly Ile Ile Gly Asp Met Val Asn Phe Asp Ala Leu Ile
85 90 95

Ala Ala Gly Phe Gly Thr Pro Arg Glu Gln Ile Asn Leu Glu Asp Ser
100 105 110

Pro Gly Thr Val Thr Gln Thr Tyr Glu Leu Thr Lys Glu Cys Leu Gln
115 120 125

Thr Asn Tyr Tyr Gly Ala Lys Arg Thr Val Glu Ala Leu Leu Pro Leu
130 135 140

Leu Lys Leu Ser Asp Ser Pro Arg Ile Val Asn Val Ser Ser Phe Leu
145 150 155 160

Gly Arg Leu Thr Tyr Ile Pro Asn Glu Thr Ile Arg Gly Val Leu Arg
165 170 175

Asp Ala Glu Ser Leu Thr Glu Glu Arg Ile Asp Glu Ile Leu Asn Asp

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 180 | | 185 | | 190 | | | | | | | | | | |
| Met | Leu | Arg | Asp | Phe | Lys | Asp | Cys | Ser | Phe | Lys | Glu | Lys | Gly | Trp | Pro |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Lys | Asn | Leu | Ala | Ala | Tyr | Ile | Val | Ser | Lys | Ala | Ala | Leu | Ser | Ala | Tyr |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Thr | Arg | Ile | Leu | Ala | Lys | Lys | Tyr | Pro | Ser | Ile | Met | Ile | Asn | Cys | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Cys | Pro | Gly | Phe | Val | Lys | Thr | Asp | Ile | Asn | Gly | Asn | Thr | Gly | His | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Val | Glu | Glu | Gly | Ala | Ala | Ser | Leu | Ala | Arg | Leu | Ala | Leu | Met | Pro |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Gln | Ile | Leu | Pro | Ser | Gly | Leu | Phe | Phe | Gln | Arg | Thr | Glu | Val | Ser | Ser |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Phe | Glu | | | | | | | | | | | | | | |
| | 290 | | | | | | | | | | | | | | |

<210> 53
 <211> 1148
 <212> DNA
 <213> Sueada japonica

<220>
 <221> CDS
 <222> (3).. (848)

<400> 53
 ga agc agg ccg gat atc cat gtt gaa caa gct cat tca gat gat att 47
 Ser Arg Pro Asp Ile His Val Glu Gln Ala His Ser Asp Asp Ile
 1 5 10 15
 act ggg ttg aaa ttc tca tgt gat ggt cgt cat ctg ttg tct aga agt 95
 Thr Gly Leu Lys Phe Ser Cys Asp Gly Arg His Leu Leu Ser Arg Ser
 20 25 30
 ttt gat tgc aca ctt aag gtt tgg gac ttg cgc caa atg aag cgg tct 143
 Phe Asp Cys Thr Leu Lys Val Trp Asp Leu Arg Gln Met Lys Arg Ser
 35 40 45

| | |
|---|-----|
| ctt aag glg ttt gat gaa tta cca aat cac tat gct caa acg aat gtc | 191 |
| Leu Lys Val Phe Asp Glu Leu Pro Asn His Tyr Ala Gln Thr Asn Val | |
| 50 55 60 | |
| ica ttt agt cca gat gag cag ctc atc ttg act ggt aca tct gta gaa | 239 |
| Ser Phe Ser Pro Asp Glu Gln Leu Ile Leu Thr Gly Thr Ser Val Glu | |
| 65 70 75 | |
| agg gat agc cca act gga gga ttg ttg tgc ttt tat gat cgg gaa aaa | 287 |
| Arg Asp Ser Pro Thr Gly Gly Leu Leu Cys Phe Tyr Asp Arg Glu Lys | |
| 80 85 90 95 | |
| ctt gaa cta gta tca aaa gtt ggc att tct cct act tgc agt gtt gtg | 335 |
| Leu Glu Leu Val Ser Lys Val Gly Ile Ser Pro Thr Cys Ser Val Val | |
| 100 105 110 | |
| caa tgt gcc tgg cac cca agg ctg aat cag gtt ttt gcc act gct gga | 383 |
| Gln Cys Ala Trp His Pro Arg Leu Asn Gln Val Phe Ala Thr Ala Gly | |
| 115 120 125 | |
| aat aaa agc caa gga ggt aca cat gta ctc tat gat cca acc atg agt | 431 |
| Asn Lys Ser Gln Gly Gly Thr His Val Leu Tyr Asp Pro Thr Met Ser | |
| 130 135 140 | |
| gag aga ggt gct ctt gtg tgt gtt gct cgt gca cca agg atg aaa tca | 479 |
| Glu Arg Gly Ala Leu Val Cys Val Ala Arg Ala Pro Arg Met Lys Ser | |
| 145 150 155 | |
| gtg gat gat ttt gag gtg cag ccg gtt ata cat aac cct cac gca ctt | 527 |
| Val Asp Asp Phe Glu Val Gln Pro Val Ile His Asn Pro His Ala Leu | |
| 160 165 170 175 | |
| ccc ttg ttc aga gat cag cca agc cgc aaa cgt caa aga gag aag att | 575 |
| Pro Leu Phe Arg Asp Gln Pro Ser Arg Lys Arg Gln Arg Glu Lys Ile | |
| 180 185 190 | |
| ctg aag gac cca ata aaa tcc cac aaa cca gag ctt cct atg tca gga | 623 |
| Leu Lys Asp Pro Ile Lys Ser His Lys Pro Glu Leu Pro Met Ser Gly | |
| 195 200 205 | |
| cct ggc cat ggt ggc aga act ggt aca tca tcg ggt agt ttg tta aca | 671 |
| Pro Gly His Gly Gly Arg Thr Gly Thr Ser Ser Gly Ser Leu Leu Thr | |
| 210 215 220 | |
| caa tat ctc ctc aag caa ggg ggc atg ttg aaa gag aca tgg atg gat | 719 |

Gln Tyr Leu Leu Lys Gln Gly Gly Met Leu Lys Glu Thr Trp Met Asp
 225 230 235
 gaa gat ccc aga gaa gct att ctc aag tat gct gat gct gca gaa aag 767
 Glu Asp Pro Arg Glu Ala Ile Leu Lys Tyr Ala Asp Ala Ala Glu Lys
 240 245 250 255
 gat cca aag ttt att gcc ccg gct tat gct gag act cag ccc aag cca 815
 Asp Pro Lys Phe Ile Ala Pro Ala Tyr Ala Glu Thr Gln Pro Lys Pro
 260 265 270
 gtc ttt gag gat tct gat aag gaa gat gaa gaa taattcaatc tttgcagttg 868
 Val Phe Glu Asp Ser Asp Lys Glu Asp Glu Glu
 275 280
 ttggattaat ttaatttgag aatattatc tgtgtatatt aatagccaat ttttcaggcg 928
 aatgataatgc ttttcacatt acatgctgag ttttatttgc tgcctacagat tglagatgaa 988
 taggttaatg taaacacaag catagagatt agaatataga aatgattctg tatccaaaac 1048
 acaattttat caccagaagg tatcaaaagc tgtattgact gttgagtaat gtcattaac 1108
 actttcactc cccaaaaaaa aaaaaaaaaa aaaaaaaaaa 1148

<210> 54
 <211> 282
 <212> PRT
 <213> Sueada japonica

<400> 54
 Ser Arg Pro Asp Ile His Val Glu Gln Ala His Ser Asp Asp Ile Thr
 1 5 10 15
 Gly Leu Lys Phe Ser Cys Asp Gly Arg His Leu Leu Ser Arg Ser Phe
 20 25 30
 Asp Cys Thr Leu Lys Val Trp Asp Leu Arg Gln Met Lys Arg Ser Leu
 35 40 45
 Lys Val Phe Asp Glu Leu Pro Asn His Tyr Ala Gln Thr Asn Val Ser
 50 55 60
 Phe Ser Pro Asp Glu Gln Leu Ile Leu Thr Gly Thr Ser Val Glu Arg
 65 70 75 80

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ser | Pro | Thr | Gly | Gly | Leu | Leu | Cys | Phe | Tyr | Asp | Arg | Glu | Lys | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Leu | Val | Ser | Lys | Val | Gly | Ile | Ser | Pro | Thr | Cys | Ser | Val | Val | Gln |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Cys | Ala | Trp | His | Pro | Arg | Leu | Asn | Gln | Val | Phe | Ala | Thr | Ala | Gly | Asn |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Lys | Ser | Gln | Gly | Gly | Thr | His | Val | Leu | Tyr | Asp | Pro | Thr | Met | Ser | Glu |
| | | | 130 | | | | 135 | | | | | 140 | | | |
| Arg | Gly | Ala | Leu | Val | Cys | Val | Ala | Arg | Ala | Pro | Arg | Met | Lys | Ser | Val |
| 145 | | | | | | 150 | | | | 155 | | | | | 160 |
| Asp | Asp | Phe | Glu | Val | Gln | Pro | Val | Ile | His | Asn | Pro | His | Ala | Leu | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Phe | Arg | Asp | Gln | Pro | Ser | Arg | Lys | Arg | Gln | Arg | Glu | Lys | Ile | Leu |
| | | | | 180 | | | | 185 | | | | | 190 | | |
| Lys | Asp | Pro | Ile | Lys | Ser | His | Lys | Pro | Glu | Leu | Pro | Met | Ser | Gly | Pro |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Gly | His | Gly | Gly | Arg | Thr | Gly | Thr | Ser | Ser | Gly | Ser | Leu | Leu | Thr | Gln |
| | | | 210 | | | | 215 | | | | 220 | | | | |
| Tyr | Leu | Leu | Lys | Gln | Gly | Gly | Met | Leu | Lys | Glu | Thr | Trp | Met | Asp | Glu |
| 225 | | | | | | 230 | | | | 235 | | | | | 240 |
| Asp | Pro | Arg | Glu | Ala | Ile | Leu | Lys | Tyr | Ala | Asp | Ala | Ala | Glu | Lys | Asp |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Lys | Phe | Ile | Ala | Pro | Ala | Tyr | Ala | Glu | Thr | Gln | Pro | Lys | Pro | Val |
| | | | | 260 | | | | 265 | | | | | 270 | | |
| Phe | Glu | Asp | Ser | Asp | Lys | Glu | Asp | Glu | Glu | | | | | | |
| | | | | 275 | | | 280 | | | | | | | | |

<210> 55
 <211> 1193
 <212> DNA
 <213> *Avicennia marina*

<220>

<221> CDS

<222> (3).. (815)

<400> 55

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|---|-----|
| gi gca cct gag tta ctt ctt gga gca aag cat tat aca agt gct gtt | 47 |
| Ala Pro Glu Leu Leu Leu Gly Ala Lys His Tyr Thr Ser Ala Val | |
| 1 5 10 15 | |
| gac atg tgg gct gtg ggc tgc att ttt gct gag ctt ctg act cta aag | 95 |
| Asp Met Trp Ala Val Gly Cys Ile Phe Ala Glu Leu Leu Thr Leu Lys | |
| 20 25 30 | |
| cca cta ttt caa ggg caa gaa gta aaa ggg act tct aat cca ttt cag | 143 |
| Pro Leu Phe Gln Gly Gln Glu Val Lys Gly Thr Ser Asn Pro Phe Gln | |
| 35 40 45 | |
| ctt gat caa ctt gac aaa atc ttt aag gtc cta ggt cat ccc acg caa | 191 |
| Leu Asp Gln Leu Asp Lys Ile Phe Lys Val Leu Gly His Pro Thr Gln | |
| 50 55 60 | |
| gaa aag tgg ccc aca cta gcg aat ctt cca cat tgg cag tct gat gtg | 239 |
| Glu Lys Trp Pro Thr Leu Ala Asn Leu Pro His Trp Gln Ser Asp Val | |
| 65 70 75 | |
| caa cgt atc caa ggg ctc aaa tac gac aat act gga ctt tac aat gtt | 287 |
| Gln Arg Ile Gln Gly Leu Lys Tyr Asp Asn Thr Gly Leu Tyr Asn Val | |
| 80 85 90 95 | |
| gtt cat ctc tcc ccc aaa aat cca gca tat gac ctt ctc tca aag atg | 335 |
| Val His Leu Ser Pro Lys Asn Pro Ala Tyr Asp Leu Leu Ser Lys Met | |
| 100 105 110 | |
| ctt gag tat gat cct aga aaa aga ata aca gct aca caa gct ctt gag | 383 |
| Leu Glu Tyr Asp Pro Arg Lys Arg Ile Thr Ala Thr Gln Ala Leu Glu | |
| 115 120 125 | |
| cat gag tat ttt cgc atg gaa cct ttg ccg gga cgc aac gct ctg gta | 431 |
| His Glu Tyr Phe Arg Met Glu Pro Leu Pro Gly Arg Asn Ala Leu Val | |
| 130 135 140 | |
| cca cca cag cct ggg gag aaa att gtg aac tac cca aca cga cca gtg | 479 |
| Pro Pro Gln Pro Gly Glu Lys Ile Val Asn Tyr Pro Thr Arg Pro Val | |
| 145 150 155 | |

gac aca aal act gat ali gaa gga aca atc agc ctc cag ccc tct caa 527
Asp Thr Asn Thr Asp Ile Glu Gly Thr Ile Ser Leu Gln Pro Ser Gln
160 165 170 175

ccg gta tca tct ggg aat tct gtg tct ggg gcc cta gcc ggt cct cat 575
Pro Val Ser Ser Gly Asn Ser Val Ser Gly Ala Leu Ala Gly Pro His
180 185 190

gta atg caa aat aga tcc atg cct cgg cca atg ccc atg gtt ggc gtg 623
Val Met Gln Asn Arg Ser Met Pro Arg Pro Met Pro Met Val Gly Val
195 200 205

caa cgc atg caa cct cca ggg atc cca cac tat ggt ctt gct tct cag 671
Gln Arg Met Gln Pro Pro Gly Ile Pro His Tyr Gly Leu Ala Ser Gln
210 215 220

gca gga atg ggt gga gta aat cct ggt ggc atc cca att cag cgg gga 719
Ala Gly Met Gly Gly Val Asn Pro Gly Gly Ile Pro Ile Gln Arg Gly
225 230 235

gtt cct gct cag gct cat caa cag cag cag atg aga agg aaa gac cct 767
Val Pro Ala Gln Ala His Gln Gln Gln Gln Met Arg Arg Lys Asp Pro
240 245 250 255

gga atg ggg atg act gga tat cct cca caa cag aaa tca agg cgc ttt 815
Gly Met Gly Met Thr Gly Tyr Pro Pro Gln Gln Lys Ser Arg Arg Phe
260 265 270

tgagagtcg ggtggatttg gagcctaagt gggaggacaa atacacattc caatcaaat 875

agaggaaacc ttaaatlaat ctccagtca gctgaaacga caccagtga accaaatgat 935

ctgaccccat ttccaggatt gcatgtatit attaggagga atacacgaat gaagattcga 995

gtctagtgcc aaattatct aacatacctt catcattgt tcttactaca ttccgacgtt 1055

atatgtttca actagtggaa gggtttctgc agtccacca tgtggcaca aatgattca 1115

tagcatgcca agcaacactt tactgggtgt tactcaaggca atttctctat ttccaagcca 1175

aaaaaaaaa aaaaaaaaa 1193

<210> 56
<211> 271
<212> PRT

<213> Avicennia marina

<400> 56

Ala Pro Glu Leu Leu Leu Gly Ala Lys His Tyr Thr Ser Ala Val Asp
1 5 10 15

Met Trp Ala Val Gly Cys Ile Phe Ala Glu Leu Leu Thr Leu Lys Pro
20 25 30

Leu Phe Gln Gly Gln Glu Val Lys Gly Thr Ser Asn Pro Phe Gln Leu
35 40 45

Asp Gln Leu Asp Lys Ile Phe Lys Val Leu Gly His Pro Thr Gln Glu
50 55 60

Lys Trp Pro Thr Leu Ala Asn Leu Pro His Trp Gln Ser Asp Val Gln
65 70 75 80

Arg Ile Gln Gly Leu Lys Tyr Asp Asn Thr Gly Leu Tyr Asn Val Val
85 90 95

His Leu Ser Pro Lys Asn Pro Ala Tyr Asp Leu Leu Ser Lys Met Leu
100 105 110

Glu Tyr Asp Pro Arg Lys Arg Ile Thr Ala Thr Gln Ala Leu Glu His
115 120 125

Glu Tyr Phe Arg Met Glu Pro Leu Pro Gly Arg Asn Ala Leu Val Pro
130 135 140

Pro Gln Pro Gly Glu Lys Ile Val Asn Tyr Pro Thr Arg Pro Val Asp
145 150 155 160

Thr Asn Thr Asp Ile Glu Gly Thr Ile Ser Leu Gln Pro Ser Gln Pro
165 170 175

Val Ser Ser Gly Asn Ser Val Ser Gly Ala Leu Ala Gly Pro His Val
180 185 190

Met Gln Asn Arg Ser Met Pro Arg Pro Met Pro Met Val Gly Val Gln
195 200 205

Arg Met Gln Pro Pro Gly Ile Pro His Tyr Gly Leu Ala Ser Gln Ala
210 215 220

Gly Met Gly Gly Val Asn Pro Gly Gly Ile Pro Ile Gln Arg Gly Val

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 | | 230 | | 235 | | 240 | | | | | | | | | |
| Pro | Ala | Gln | Ala | His | Gln | Gln | Gln | Gln | Met | Arg | Arg | Lys | Asp | Pro | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Met | Gly | Met | Thr | Gly | Tyr | Pro | Pro | Gln | Gln | Lys | Ser | Arg | Arg | Phe | |
| | | | 260 | | | | | 265 | | | | | | 270 | |

<210> 57
 <211> 1195
 <212> DNA
 <213> Sueada japonica

<220>
 <221> CDS
 <222> (116).. (1195)

<400> 57
 gcaaaagtaa gagtgaaaga acacaaacca acttcttatt ttccagctcaa atcaaatcca 60
 atagtggtcaa aacaatagag ggcaaatctt catggcccaa ttcaaatttg glaaa atg 118
 Met
 1
 gct caa aag cat ttg aaa gaa ctt ctc aaa gaa gat caa gaa ccc ttt 166
 Ala Gln Lys His Leu Lys Glu Leu Leu Lys Glu Asp Gln Glu Pro Phe
 5 10 15
 cat tta aag gat tac att gca act aaa aaa tgt caa ctt ttg aag aag 214
 His Leu Lys Asp Tyr Ile Ala Thr Lys Lys Cys Gln Leu Leu Lys Lys
 20 25 30
 caa gaa tta gta gta ccc aaa tca aaa ctt caa ctc aaa aag cca aag 262
 Gln Glu Leu Val Val Pro Lys Ser Lys Leu Gln Leu Lys Lys Pro Lys
 35 40 45
 cca aaa cca att tca aaa agc act tca gtt ttg tgc aaa aat gct tgc 310
 Pro Lys Pro Ile Ser Lys Ser Thr Ser Val Leu Cys Lys Asn Ala Cys
 50 55 60 65
 ttt tta tct tta caa gaa tcc cct gac ctc aga aaa tcc ccc aaa cta 358
 Phe Leu Ser Leu Gln Glu Ser Pro Asp Leu Arg Lys Ser Pro Lys Leu
 70 75 80

| | |
|--|-----|
| ttt gat ttt cca cct tcc cct gtt tct aac aaa agc cca aac aga gta Phe Asp Phe Pro Pro Ser Pro Val Ser Asn Lys Ser Pro Asn Arg Val 85 90 95 | 406 |
| ttc ctc aat gtt cct gct aaa act gct gct ctt ctt ctt gaa gct gct Phe Leu Asn Val Pro Ala Lys Thr Ala Ala Leu Leu Leu Glu Ala Ala 100 105 110 | 454 |
| att cga att caa acc cac aaa tct aaa ccc aaa acc cag att aaa aat Ile Arg Ile Gln Thr His Lys Ser Lys Pro Lys Thr Gln Ile Lys Asn 115 120 125 | 502 |
| tct ggt ttt ggg cta ttc ggg tca atg tta aag cga tta aat ctt cga Ser Gly Phe Gly Leu Phe Gly Ser Met Leu Lys Arg Leu Asn Leu Arg 130 135 140 145 | 550 |
| aat cgt acc caa aaa atc aag tca aaa aca gag gaa caa aac aga gga Asn Arg Thr Gln Lys Ile Lys Ser Lys Thr Glu Glu Gln Asn Arg Gly 150 155 160 | 598 |
| tgc tct gtt ttg agg agt gtt gaa gaa gaa aaa act acc acc att tct Cys Ser Val Leu Arg Ser Val Glu Glu Glu Lys Thr Thr Thr Ile Ser 165 170 175 | 646 |
| tct tct tca tct tca tct tct tca aca tca tct tat tct tct tgt tct Ser Ser Ser Ser Ser Ser Ser Ser Thr Ser Ser Tyr Ser Ser Cys Ser 180 185 190 | 694 |
| tgc aat gag agg tta agt agt ttg gat ttg gag agt tct agc agt gga Cys Asn Glu Arg Leu Ser Ser Leu Asp Leu Glu Ser Ser Ser Ser Gly 195 200 205 | 742 |
| aga tca tta cat gat gaa gat gaa gat gaa gat gaa gat gat gaa ttt Arg Ser Leu His Asp Glu Asp Glu Asp Glu Asp Glu Asp Asp Glu Phe 210 215 220 225 | 790 |
| gag ttt aca aat gtt tta aga gaa aat aat aat gat gat aaa aat gga Glu Phe Thr Asn Val Leu Arg Glu Asn Asn Asn Asp Asp Lys Asn Gly 230 235 240 | 838 |
| ggt tat tat tca gga att tgc tta agt cct ttg agt cca ttt cgt ttt Gly Tyr Tyr Ser Gly Ile Cys Leu Ser Pro Leu Ser Pro Phe Arg Phe 245 250 255 | 886 |
| gct ctt cat aaa aac tct tct cct gaa cgt tgc tct cct gct aaa tcc Ala Leu His Lys Asn Ser Ser Pro Glu Arg Cys Ser Pro Ala Lys Ser | 934 |

| 260 | 265 | 270 | |
|---|-----|-----|------|
| ccf gtl cgt tgc aaa tll gag ggt aat gct aaa lat gaa caa gaa agc | | | 982 |
| Pro Val Arg Cys Lys Phe Glu Gly Asn Ala Lys Tyr Glu Gln Glu Ser | | | |
| 275 | 280 | 285 | |
| tta ata aag tll gaa gac gaa gal gaa gaa gac aaa gag caa aat agc | | | 1030 |
| Leu Ile Lys Phe Glu Asp Glu Asp Glu Glu Asp Lys Glu Gln Asn Ser | | | |
| 290 | 295 | 300 | 305 |
| ccf gtl tcc gtg ctc gat cct cca ttc gag gat gat tac gat ggg cat | | | 1078 |
| Pro Val Ser Val Leu Asp Pro Pro Phe Glu Asp Asp Tyr Asp Gly His | | | |
| | 310 | 315 | 320 |
| gag gag gat agc tac gag gac atc gaa tgc agc tat gct ttt gta caa | | | 1126 |
| Glu Glu Asp Ser Tyr Glu Asp Ile Glu Cys Ser Tyr Ala Phe Val Gln | | | |
| | 325 | 330 | 335 |
| aga gca caa caa gag tta ttg cac aga ctt cac cgg ttc cag aag cta | | | 1174 |
| Arg Ala Gln Gln Glu Leu Leu His Arg Leu His Arg Phe Gln Lys Leu | | | |
| | 340 | 345 | 350 |
| gcg gag ttg gac cca att gaa | | | 1195 |
| Ala Glu Leu Asp Pro Ile Glu | | | |
| | 355 | 360 | |
| <210> 58 | | | |
| <211> 360 | | | |
| <212> PRT | | | |
| <213> Sueada japonica | | | |
| <400> 58 | | | |
| Met Ala Gln Lys His Leu Lys Glu Leu Leu Lys Glu Asp Gln Glu Pro | | | |
| 1 | 5 | 10 | 15 |
| Phe His Leu Lys Asp Tyr Ile Ala Thr Lys Lys Cys Gln Leu Leu Lys | | | |
| | 20 | 25 | 30 |
| Lys Gln Glu Leu Val Val Pro Lys Ser Lys Leu Gln Leu Lys Lys Pro | | | |
| | 35 | 40 | 45 |
| Lys Pro Lys Pro Ile Ser Lys Ser Thr Ser Val Leu Cys Lys Asn Ala | | | |
| | 50 | 55 | 60 |
| Cys Phe Leu Ser Leu Gln Glu Ser Pro Asp Leu Arg Lys Ser Pro Lys | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Phe | Asp | Phe | Pro | Pro | Ser | Pro | Val | Ser | Asn | Lys | Ser | Pro | Asn | Arg |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Phe | Leu | Asn | Val | Pro | Ala | Lys | Thr | Ala | Ala | Leu | Leu | Leu | Glu | Ala |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Ala | Ile | Arg | Ile | Gln | Thr | His | Lys | Ser | Lys | Pro | Lys | Thr | Gln | Ile | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asn | Ser | Gly | Phe | Gly | Leu | Phe | Gly | Ser | Met | Leu | Lys | Arg | Leu | Asn | Leu |
| | | 130 | | | | | 135 | | | | | 140 | | | |
| Arg | Asn | Arg | Thr | Gln | Lys | Ile | Lys | Ser | Lys | Thr | Glu | Glu | Gln | Asn | Arg |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Cys | Ser | Val | Leu | Arg | Ser | Val | Glu | Glu | Glu | Lys | Thr | Thr | Thr | Ile |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Ser | Ser | Ser | Ser | Ser | Ser | Ser | Ser | Thr | Ser | Ser | Tyr | Ser | Ser | Cys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Cys | Asn | Glu | Arg | Leu | Ser | Ser | Leu | Asp | Leu | Glu | Ser | Ser | Ser | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Arg | Ser | Leu | His | Asp | Glu | Asp | Glu | Asp | Glu | Asp | Glu | Asp | Asp | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Glu | Phe | Thr | Asn | Val | Leu | Arg | Glu | Asn | Asn | Asn | Asp | Asp | Lys | Asn |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Gly | Tyr | Tyr | Ser | Gly | Ile | Cys | Leu | Ser | Pro | Leu | Ser | Pro | Phe | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Phe | Ala | Leu | His | Lys | Asn | Ser | Ser | Pro | Glu | Arg | Cys | Ser | Pro | Ala | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ser | Pro | Val | Arg | Cys | Lys | Phe | Glu | Gly | Asn | Ala | Lys | Tyr | Glu | Gln | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Leu | Ile | Lys | Phe | Glu | Asp | Glu | Asp | Glu | Glu | Asp | Lys | Glu | Gln | Asn |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Pro | Val | Ser | Val | Leu | Asp | Pro | Pro | Phe | Glu | Asp | Asp | Tyr | Asp | Gly |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |

His Glu Glu Asp Ser Tyr Glu Asp Ile Glu Cys Ser Tyr Ala Phe Val
325 330 335

Gln Arg Ala Gln Gln Glu Leu Leu His Arg Leu His Arg Phe Gln Lys
340 345 350

Leu Ala Glu Leu Asp Pro Ile Glu
355 360

<210> 59

<211> 1301

<212> DNA

<213> Salsola komarovii

<220>

<221> CDS

<222> (3).. (815)

<400> 59

gt gag gtt gac gat agc gtt aat agt cta cag gca gat gtt gac aac 47
Glu Val Asp Asp Ser Val Asn Ser Leu Gln Ala Asp Val Asp Asn
1 5 10 15

ctt tca att gag gaa cgc aga ttg gat gaa cag ata agg gaa atg caa 95
Leu Ser Ile Glu Glu Arg Arg Leu Asp Glu Gln Ile Arg Glu Met Gln
20 25 30

gaa aga ttg agg gaa atg agt gaa gat gat atc aat cag aag tgg ctt 143
Glu Arg Leu Arg Glu Met Ser Glu Asp Asp Ile Asn Gln Lys Trp Leu
35 40 45

ttt gta act gaa gaa gac ata aag ggt tta cct tgt ttt cag aat gaa 191
Phe Val Thr Glu Glu Asp Ile Lys Gly Leu Pro Cys Phe Gln Asn Glu
50 55 60

acc tta att gca att aaa gct cca cat gga aca act ttg gag gtt cca 239
Thr Leu Ile Ala Ile Lys Ala Pro His Gly Thr Thr Leu Glu Val Pro
65 70 75

gat cca gat gag gct gtc gat tat cct caa aga aga tac aag ata gtt 287
Asp Pro Asp Glu Ala Val Asp Tyr Pro Gln Arg Arg Tyr Lys Ile Val
80 85 90 95

ctt agg agc aca atg ggt cct att gat gla tat tta gtc agt caa ttt 335
 Leu Arg Ser Thr Met Gly Pro Ile Asp Val Tyr Leu Val Ser Gln Phe
 100 105 110

gaa gag aag ttt gag gag aic agt ggt gct gac ggt cca cia agt ata 383
 Glu Glu Lys Phe Glu Glu Ile Ser Gly Ala Asp Gly Pro Leu Ser Ile
 115 120 125

cca agt acc tca ggt gat gac aaa cac aca act gtt gca gct aag gaa 431
 Pro Ser Thr Ser Gly Asp Asp Lys His Thr Thr Val Ala Ala Lys Glu
 130 135 140

gaa agc aat ggc aat gag att gaa ata gaa gga caa ggg acc cat aga 479
 Glu Ser Asn Gly Asn Glu Ile Glu Ile Glu Gly Gln Gly Thr His Arg
 145 150 155

atc tgc tca gat tcc aac gct cag caa gac ttt gtg agt gga att atg 527
 Ile Cys Ser Asp Ser Asn Ala Gln Gln Asp Phe Val Ser Gly Ile Met
 160 165 170 175

aag ata gtg cct gaa gtt gat agt gat gca gat tac tgg ttg cta tct 575
 Lys Ile Val Pro Glu Val Asp Ser Asp Ala Asp Tyr Trp Leu Leu Ser
 180 185 190

gat gct gat gtt agc att act gac atg tgg gga act gat tct gga gtt 623
 Asp Ala Asp Val Ser Ile Thr Asp Met Trp Gly Thr Asp Ser Gly Val
 195 200 205

gaa tgg aat gaa tta ggg act ata cat gaa gac tat gcc gtg gct aat 671
 Glu Trp Asn Glu Leu Gly Thr Ile His Glu Asp Tyr Ala Val Ala Asn
 210 215 220

gtt ggc act tca cag cca caa agt cca cca aca agt gca aca gaa gtg 719
 Val Gly Thr Ser Gln Pro Gln Ser Pro Pro Thr Ser Ala Thr Glu Val
 225 230 235

ctt cca gct aac atg aca agc agg aga ttg aca tgg agt ttt gag aga 767
 Leu Pro Ala Asn Met Thr Ser Arg Arg Leu Thr Trp Ser Phe Glu Arg
 240 245 250 255

att gcc aar att cat tca aat ggt cac tat tgc ttg gaa gtg agg ctc 815
 Ile Ala Lys Ile His Ser Asn Gly His Tyr Cys Leu Glu Val Arg Leu
 260 265 270

taactttcta ttatcatcc igggatttgg gtacgaaagt ctgccctgaa gatgcigtaa 875

caigtltgtl allacaacig tglgaalcia glaaglttgt agggigagal tglccclgal 935
 ctatltgcac agccgtltgg gagagaltga tgcclcaaca acigacaaaa tlggggcatg 995
 ltaacggata glalgcagtl gtaattltgt acatcacatt tgltgatttl aglcaglaca 1055
 lcalaactag cclclcciat acilcllcaa tlgcaacig gaalagattl llagattlaa 1115
 tagatclclt tltgtatgga aatgtltcag ggtaacaagc cagaaattaa aatggltlta 1175
 tglglataaaa tatataclta aatgtltgt aggaagtlc tgalgggttg tlggaatggc 1235
 ltaacaact acatclata aggaatltg tatcacaaat tcacaatgaa aaaaaaaaaa 1295
 aaaaaa 1301

<210> 60
 <211> 271
 <212> PRT
 <213> Salsola komarovii

<400> 60
 Glu Val Asp Asp Ser Val Asn Ser Leu Gln Ala Asp Val Asp Asn Leu
 1 5 10 15
 Ser Ile Glu Glu Arg Arg Leu Asp Glu Gln Ile Arg Glu Met Gln Glu
 20 25 30
 Arg Leu Arg Glu Met Ser Glu Asp Asp Ile Asn Gln Lys Trp Leu Phe
 35 40 45
 Val Thr Glu Glu Asp Ile Lys Gly Leu Pro Cys Phe Gln Asn Glu Thr
 50 55 60
 Leu Ile Ala Ile Lys Ala Pro His Gly Thr Thr Leu Glu Val Pro Asp
 65 70 75 80
 Pro Asp Glu Ala Val Asp Tyr Pro Gln Arg Arg Tyr Lys Ile Val Leu
 85 90 95
 Arg Ser Thr Met Gly Pro Ile Asp Val Tyr Leu Val Ser Gln Phe Glu
 100 105 110
 Glu Lys Phe Glu Glu Ile Ser Gly Ala Asp Gly Pro Leu Ser Ile Pro
 115 120 125

Ser Thr Ser Gly Asp Asp Lys His Thr Thr Val Ala Ala Lys Glu Glu
 130 135 140
 Ser Asn Gly Asn Glu Ile Glu Ile Glu Gly Gln Gly Thr His Arg Ile
 145 150 155 160
 Cys Ser Asp Ser Asn Ala Gln Gln Asp Phe Val Ser Gly Ile Met Lys
 165 170 175
 Ile Val Pro Glu Val Asp Ser Asp Ala Asp Tyr Trp Leu Leu Ser Asp
 180 185 190
 Ala Asp Val Ser Ile Thr Asp Met Trp Gly Thr Asp Ser Gly Val Glu
 195 200 205
 Trp Asn Glu Leu Gly Thr Ile His Glu Asp Tyr Ala Val Ala Asn Val
 210 215 220
 Gly Thr Ser Gln Pro Gln Ser Pro Pro Thr Ser Ala Thr Glu Val Leu
 225 230 235 240
 Pro Ala Asn Met Thr Ser Arg Arg Leu Thr Trp Ser Phe Glu Arg Ile
 245 250 255
 Ala Lys Ile His Ser Asn Gly His Tyr Cys Leu Glu Val Arg Leu
 260 265 270

<210> 61
 <211> 1032
 <212> DNA
 <213> Salsola komarovii

<220>
 <221> CDS
 <222> (1)..(732)

<400> 61
 cca caa cga aga ccc gac ccg gtc ccg aac ctt cac ggt cag ctt ttt 48
 Pro Gln Arg Arg Pro Asp Pro Val Pro Asn Leu His Gly Gln Leu Phe
 1 5 10 15
 caa cac cga aat cca cac cac cgt gac ctc cac ccc tgc cgt agc ccg 96
 Gln His Arg Asn Pro His His Arg Asp Leu His Pro Cys Arg Ser Pro

| 20 | 25 | 30 | |
|---|-----|-----|-----|
| gca alg ggt cca ctc cct ccg cag act cat ctg cgc tgg tat tcc ctc | | | 144 |
| Ala Met Gly Pro Leu Pro Pro Gln Thr His Leu Arg Trp Tyr Ser Leu | | | |
| 35 | 40 | 45 | |
| tcg cgc tac tcc ccc gtg atc ggc ctc ggc glc caa tgg aag ccc tcc | | | 192 |
| Ser Arg Tyr Ser Pro Val Ile Gly Leu Gly Val Gln Trp Lys Pro Ser | | | |
| 50 | 55 | 60 | |
| tcc acc tca gct gcc act ctt caa ctc agc atc gac aaa aag tgc ctc | | | 240 |
| Ser Thr Ser Ala Ala Thr Leu Gln Leu Ser Ile Asp Lys Lys Cys Leu | | | |
| 65 | 70 | 75 | 80 |
| atc ttc caa ctc tcc cac tcc ccc gcc atc ccc gcc acc ctc cgc gac | | | 288 |
| Ile Phe Gln Leu Ser His Ser Pro Ala Ile Pro Ala Thr Leu Arg Asp | | | |
| 85 | 90 | 95 | |
| ctc ctc ctc gac gat cgc gtc acc ttc ttt ggt gtc cac aac ggc cgt | | | 336 |
| Leu Leu Leu Asp Asp Arg Val Thr Phe Phe Gly Val His Asn Gly Arg | | | |
| 100 | 105 | 110 | |
| gcc cgc gac ctc ctc caa ggg tcc cac cat gag ctc gac glc aac aat | | | 384 |
| Ala Arg Asp Leu Leu Gln Gly Ser His His Glu Leu Asp Val Asn Asn | | | |
| 115 | 120 | 125 | |
| ctg gtt gat ctt gcc gag gag gaa aat ggt cat tac ttg aag tgg tcc | | | 432 |
| Leu Val Asp Leu Ala Glu Glu Glu Asn Gly His Tyr Leu Lys Trp Ser | | | |
| 130 | 135 | 140 | |
| atg gaa gac atg gct gaa gat gtg ttg ggc ttt tgt ggg gla cac aaa | | | 480 |
| Met Glu Asp Met Ala Glu Asp Val Leu Gly Phe Cys Gly Val His Lys | | | |
| 145 | 150 | 155 | 160 |
| ccc agg aag gtt atg tta agt ggt tgg gat cag tat tgc ttg tct aat | | | 528 |
| Pro Arg Lys Val Met Leu Ser Gly Trp Asp Gln Tyr Cys Leu Ser Asn | | | |
| 165 | 170 | 175 | |
| gac cag gtt cag tat gct tgt gtt gat gct tac gtt tct ctt cgt ctt | | | 576 |
| Asp Gln Val Gln Tyr Ala Cys Val Asp Ala Tyr Val Ser Leu Arg Leu | | | |
| 180 | 185 | 190 | |
| gct cga gct tat ggg tac cac cgt ctc gat cac gat gat gat tat gat | | | 624 |
| Ala Arg Ala Tyr Gly Tyr His Arg Leu Asp His Asp Asp Asp Tyr Asp | | | |
| 195 | 200 | 205 | |

gac cai gac gac gal gal aac gac cac acc gal gal gal iac gal gac 672
 Asp His Asp Asp Asp Asp Asn Asp His Thr Asp Asp Asp Tyr Asp Asp
 210 215 220
 gti tac gac cgc aat aia ggc tct gal gal gal ggt tat gal gcc gal 720
 Val Tyr Asp Arg Asn Ile Gly Ser Asp Asp Asp Gly Tyr Asp Ala Asp
 225 230 235 240
 gal gal cga cga tgalcaattt ggactagact tcgttatlgg aagggtccga 772
 Asp Asp Arg Arg
 tcatcatgcc agtictaattt caaagagaca agaaataaaa atgatgatca aaaaaagaag 832
 tcaatccata tacgtlaattt tcatlgaact alcaattttg aggtgtttta ttatlggcct 892
 glaataatag ttttatlttaa taatagcact atagatctca tcttaacctt tacttatlgg 952
 gcttatgcgc tgtatgtcca ataaccaagt ttaattttat tcatgatctg atgattactg 1012
 caaaaaaaaa aaaaaaaaaa 1032

<210> 62
 <211> 244
 <212> PRT
 <213> Salsola komarovii

<400> 62
 Pro Gln Arg Arg Asp Pro Val Pro Asn Leu His Gly Gln Leu Phe
 1 5 10 15
 Gln His Arg Asn Pro His His Arg Asp Leu His Pro Cys Arg Ser Pro
 20 25 30
 Ala Met Gly Pro Leu Pro Pro Gln Thr His Leu Arg Trp Tyr Ser Leu
 35 40 45
 Ser Arg Tyr Ser Pro Val Ile Gly Leu Gly Val Gln Trp Lys Pro Ser
 50 55 60
 Ser Thr Ser Ala Ala Thr Leu Gln Leu Ser Ile Asp Lys Lys Cys Leu
 65 70 75 80
 Ile Phe Gln Leu Ser His Ser Pro Ala Ile Pro Ala Thr Leu Arg Asp
 85 90 95

Leu Leu Leu Asp Asp Arg Val Thr Phe Phe Gly Val His Asn Gly Arg
 100 105 110
 Ala Arg Asp Leu Leu Gln Gly Ser His His Glu Leu Asp Val Asn Asn
 115 120 125
 Leu Val Asp Leu Ala Glu Glu Glu Asn Gly His Tyr Leu Lys Trp Ser
 130 135 140
 Met Glu Asp Met Ala Glu Asp Val Leu Gly Phe Cys Gly Val His Lys
 145 150 155 160
 Pro Arg Lys Val Met Leu Ser Gly Trp Asp Gln Tyr Cys Leu Ser Asn
 165 170 175
 Asp Gln Val Gln Tyr Ala Cys Val Asp Ala Tyr Val Ser Leu Arg Leu
 180 185 190
 Ala Arg Ala Tyr Gly Tyr His Arg Leu Asp His Asp Asp Asp Tyr Asp
 195 200 205
 Asp His Asp Asp Asp Asp Asn Asp His Thr Asp Asp Asp Tyr Asp Asp
 210 215 220
 Val Tyr Asp Arg Asn Ile Gly Ser Asp Asp Asp Gly Tyr Asp Ala Asp
 225 230 235 240
 Asp Asp Arg Arg

<210> 63
 <211> 1029
 <212> DNA
 <213> Mesembryanthemum crystallinum

<220>
 <221> CDS
 <222> (3)..(824)

<400> 63
 ca caI atc agc cac atc cac tta att ccc cac agt ctt agt ctc tta 47
 His Ile Ser His Ile His Leu Ile Pro His Ser Leu Ser Leu Leu
 1 5 10 15

| | |
|---|-----|
| gac acc cat ctt agt ctt aag cct ctc atg gcc acc gcg gla ttc tca | 95 |
| Asp Thr His Leu Ser Leu Lys Pro Leu Met Ala Thr Ala Val Phe Ser | |
| 20 25 30 | |
| cct tct gcc ctt cta tcc acc tcc aca tcc acc tca aca acc cct ctt | 143 |
| Pro Ser Ala Leu Leu Ser Thr Ser Thr Ser Thr Ser Thr Thr Pro Leu | |
| 35 40 45 | |
| aaa gct ccc ccc ttg gcc tta acc aag acc cac gla acg atc cca tca | 191 |
| Lys Ala Pro Pro Leu Ala Leu Thr Lys Thr His Val Thr Ile Pro Ser | |
| 50 55 60 | |
| tca tca aag cca ccc cta acc aat tta act acc agt tta act gct gtc | 239 |
| Ser Ser Lys Pro Pro Leu Thr Asn Leu Thr Thr Ser Leu Thr Ala Val | |
| 65 70 75 | |
| gcc aca gct gct gcc ata atc ctg tcc aca acc cct cca tcc ttt gct | 287 |
| Ala Thr Ala Ala Ala Ile Ile Leu Ser Thr Thr Pro Pro Ser Phe Ala | |
| 80 85 90 95 | |
| gat gat ttg cag aca aat gca tac aac att tac tac ggc act gct gca | 335 |
| Asp Asp Leu Gln Thr Asn Ala Tyr Asn Ile Tyr Tyr Gly Thr Ala Ala | |
| 100 105 110 | |
| agt gca gcc aat tat gga ggc tac ggt ggc aat tcc aac aag aaa gat | 383 |
| Ser Ala Ala Asn Tyr Gly Gly Tyr Gly Gly Asn Ser Asn Lys Lys Asp | |
| 115 120 125 | |
| tca gct gag tac ata tat gac gtc cct gca ggt tgg aaa gag aga cta | 431 |
| Ser Ala Glu Tyr Ile Tyr Asp Val Pro Ala Gly Trp Lys Glu Arg Leu | |
| 130 135 140 | |
| gla tca aaa gtt gag aag ggt acc aat gga aca gat agt gag ttc ttc | 479 |
| Val Ser Lys Val Glu Lys Gly Thr Asn Gly Thr Asp Ser Glu Phe Phe | |
| 145 150 155 | |
| aac ccc aag aag aag aca gag cga gag tac ctt acc tac ctt gct ggt | 527 |
| Asn Pro Lys Lys Lys Thr Glu Arg Glu Tyr Leu Thr Tyr Leu Ala Gly | |
| 160 165 170 175 | |
| att agg caa cta ggt ccc aaa gaa gtg atc ctc aac aac tta gca ctc | 575 |
| Ile Arg Gln Leu Gly Pro Lys Glu Val Ile Leu Asn Asn Leu Ala Leu | |
| 180 185 190 | |
| tca gat gtg aac ctg caa gat caa att tcc agt gca gac tct gtg aca | 623 |
| Ser Asp Val Asn Leu Gln Asp Gln Ile Ser Ser Ala Asp Ser Val Thr | |

| 195 | 200 | 205 | |
|---|-----|-----|------|
| ica gaa gag agg aaa gai gac aag gga cag gll tac tal gai tal gag | | | 671 |
| Ser Glu Glu Arg Lys Asp Asp Lys Gly Gln Val Tyr Tyr Asp Tyr Glu | | | |
| 210 | 215 | 220 | |
| att gct gga gct ggt tca cac agt ttg ata tcg gla aca tgt gcc agg | | | 719 |
| Ile Ala Gly Ala Gly Ser His Ser Leu Ile Ser Val Thr Cys Ala Arg | | | |
| 225 | 230 | 235 | |
| aac aag cta tat gcg cat ttt gtt agc gca cca aca ccc gaa tgg aat | | | 767 |
| Asn Lys Leu Tyr Ala His Phe Val Ser Ala Pro Thr Pro Glu Trp Asn | | | |
| 240 | 245 | 250 | 255 |
| cgg gal caa gal atg ctg agg cac atc cac aac tca ttt aca aca gtc | | | 815 |
| Arg Asp Gln Asp Met Leu Arg His Ile His Asn Ser Phe Thr Thr Val | | | |
| 260 | 265 | 270 | |
| ggg tca ttc tagaaagigt ataigataat callataga gatgtcagag | | | 864 |
| Gly Ser Phe | | | |
| aggcatacat ttgaatglac ttctgatgag ctggacttct tgaictatgt aacattgtaa | | | 924 |
| cgaaaaatct ttttggglla tcagaaacct agtgagtgtc tgaaacttgc aatgagaaac | | | 984 |
| tcctcaataa acaatgacit gtaicaaaaa aaaaaaaaaa aaaaa | | | 1029 |

<210> 64

<211> 274

<212> PRT

<213> Mesembryanthemum crystallinum

<400> 64

His Ile Ser His Ile His Leu Ile Pro His Ser Leu Ser Leu Leu Asp

1

5

10

15

Thr His Leu Ser Leu Lys Pro Leu Met Ala Thr Ala Val Phe Ser Pro

20

25

30

Ser Ala Leu Leu Ser Thr Ser Thr Ser Thr Ser Thr Pro Leu Lys

35

40

45

Ala Pro Pro Leu Ala Leu Thr Lys Thr His Val Thr Ile Pro Ser Ser

50

55

60

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Lys | Pro | Pro | Leu | Thr | Asn | Leu | Thr | Thr | Ser | Leu | Thr | Ala | Val | Ala | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Thr | Ala | Ala | Ala | Ile | Ile | Leu | Ser | Thr | Thr | Pro | Pro | Ser | Phe | Ala | Asp | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Asp | Leu | Gln | Thr | Asn | Ala | Tyr | Asn | Ile | Tyr | Tyr | Gly | Thr | Ala | Ala | Ser | |
| | | 100 | | | | | | 105 | | | | | 110 | | | |
| Ala | Ala | Asn | Tyr | Gly | Gly | Tyr | Gly | Gly | Asn | Ser | Asn | Lys | Lys | Asp | Ser | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Ala | Glu | Tyr | Ile | Tyr | Asp | Val | Pro | Ala | Gly | Trp | Lys | Glu | Arg | Leu | Val | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ser | Lys | Val | Glu | Lys | Gly | Thr | Asn | Gly | Thr | Asp | Ser | Glu | Phe | Phe | Asn | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Pro | Lys | Lys | Lys | Thr | Glu | Arg | Glu | Tyr | Leu | Thr | Tyr | Leu | Ala | Gly | Ile | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Arg | Gln | Leu | Gly | Pro | Lys | Glu | Val | Ile | Leu | Asn | Asn | Leu | Ala | Leu | Ser | |
| | | 180 | | | | | | 185 | | | | | 190 | | | |
| Asp | Val | Asn | Leu | Gln | Asp | Gln | Ile | Ser | Ser | Ala | Asp | Ser | Val | Thr | Ser | |
| | 195 | | | | | | 200 | | | | | 205 | | | | |
| Glu | Glu | Arg | Lys | Asp | Asp | Lys | Gly | Gln | Val | Tyr | Tyr | Asp | Tyr | Glu | Ile | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ala | Gly | Ala | Gly | Ser | His | Ser | Leu | Ile | Ser | Val | Thr | Cys | Ala | Arg | Asn | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Lys | Leu | Tyr | Ala | His | Phe | Val | Ser | Ala | Pro | Thr | Pro | Glu | Trp | Asn | Arg | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Asp | Gln | Asp | Met | Leu | Arg | His | Ile | His | Asn | Ser | Phe | Thr | Thr | Val | Gly | |
| | | 260 | | | | | 265 | | | | | | 270 | | | |
| Ser | Phe | | | | | | | | | | | | | | | |

<210> 65
<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Primer

<400> 65

gcctcgagaa ccgtctagac ttgatgaag gtc

33

<210> 66

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Primer

<400> 66

tcctcgttc atctcgagct attacagctc

30